The sequences are written in the 5' to 3' direction and are represented in the DNA form. It is understood that a person having ordinary skill in the art would be able to convert the sequence of the targets to their RNA form by simply replacing the thymidine (T) with uracil (U) in the sequence.

Table 61

Mouse pri-miRNA sequences and the corresponding mature miRNAs

Pri-miRNA name	Pri-miRNA sequence	SEQ ID NO	Mature miRNA name	Mature miRNA sequence	SEQ ID NO
mir-26b	GCCCGGGACCCAGTTCAAGTAATTCAGGATAGGTTGTGGTGCTGACCAGCCTGTTCTCCATTACTTGGCTCGGGGGCCGGTGC	1273	miR-99 (Mourelatos)	TTCAAGTAATTCAGGATAGGT	1147
mir-26b	GCCCGGGACCCAGTTCAAGTAATTCAGGATAGGTTGTGGTGCTGACCAGCCTGTTCTCCATTACTTGGCTCGGGGGCCGGTGC	1273	miR-199-as	TTCAAGTAATTCAGGATAGGTT	281
mir-30a	GACAGTGAGCGACTGTAAACATCCTCGACTGGAAGCTGTGAAGCCACAAATGGGCTTTCAGTCGGATGTTTGCAGCTGCCTACTGC	1274	miR-199-as	CTTTCAGTCGGATGTTTGCAGC	193
mir-30a	GACAGTGAGCGACTGTAAACATCCTCGACTGGAAGCTGTGAAGCCACAAATGGGCTTTCAGTCGGATGTTTGCAGCTGCCTACTGC	1274	miR-26b (RFAM-Human)	TGTAAACATCCTCGACTGGAAGC	1184
mir-30c_1	GAGTGACAGATATTGTAAACATCCTACACTCTCAGCTGTGAAAAGTAAGAAAGCTGGGAGAAGGCTGTTTACTCTCTCTGCCTTG	1275	miR-32 (Tuschl)	TGTAAACATCCTACACTCTCAGC	280
mir-30c_1	GAGTGACAGATATTGTAAACATCCTACACTCTCAGCTGTGAAAAGTAAGAAAGCTGGGAGAAGGCTGTTTACTCTCTCTGCCTTG	1275	let-7c_Ruvkun	TGTAAACATCCTACACTCTCAGCT	1129
mir-128a	CCTGAGCTGTTGGATTCGGGGCCGTAGCACTGTCTGAGAGGTTTACATTTCTCACAGTGAACCGGTCTCTTTTTCAGCTGCTTC	1276	mir-214	TCACAGTGAACCGGTCTCTTT	1073
mir-128a	CCTGAGCTGTTGGATTCGGGGCCGTAGCACTGTCTGAGAGGTTTACATTTCTCACAGTGAACCGGTCTCTTTTTC	1276	miR-29b (RFAM-Human)	TCACAGTGAACCGGTCTCTTTT	200

	AGCTGCTTC				
mir-29b_1	CTCTTCTTCTGGAAGCTGGTTTCACATGGTGGCTTAGATTTTTCCATCTTTGTATCTAGCACCATTTGAAATCAGTGTTTTAGGAGTAAGAA	1277	mir-196	TAGCACCATTTGAAATCAGT	1172
mir-29b_1	CTCTTCTTCTGGAAGCTGGTTTCACATGGTGGCTTAGATTTTTCCATCTTTGTATCTAGCACCATTTGAAATCAGTGTTTTAGGAGTAAGAA	1277	hypothetical miRNA-079	TAGCACCATTTGAAATCAGTGT	1173
mir-29b_1	CTCTTCTTCTGGAAGCTGGTTTCACATGGTGGCTTAGATTTTTCCATCTTTGTATCTAGCACCATTTGAAATCAGTGTTTTAGGAGTAAGAA	1277	mir-30c	TAGCACCATTTGAAATCAGTGTT	195
mir-29c	GGCTGACCGATTTCTCCTGGTGTTCAGAGTCTGTTTTTGTCTAGCACCATTTGAAATCGGTTA	1278	mir-131_Ruvkun	CTAGCACCATTTGAAATCGGTT	232
mir-29c	GGCTGACCGATTTCTCCTGGTGTTCAGAGTCTGTTTTTGTCTAGCACCATTTGAAATCGGTTA	1278	hypothetical miRNA-033	TAGCACCATTTGAAATCGGTTA	1100
mir-123/mir-126	CGGTGACAGCACATTATTACTTTTGGTACGCGCTGTGACACTTCAAACTCGTACCGTGAGTAATAATGCGCGGTCAGCAGC	1279	mir-326 (rodent)	CATTATTACTTTTGGTACGCG	205
mir-123/mir-126	CGGTGACAGCACATTATTACTTTTGGTACGCGCTGTGACACTTCAAACTCGTACCGTGAGTAATAATGCGCGGTCAGCAGC	1279	mir-126	TCGTACCGTGAGTAATAATGC	1076
mir-130a	GGGTGAGGAGGCGGGCCGGCATGCCTTTGCTGCTGGCCGGAGCTCTTTTCACATTGTGCTACTGTCTAACGTGTACCGAGCAGTGCAATGTTAAAAGGGCATCGGCCTTGTAGTACTACCCAGTGCCGGCAGCCTCCTCAG	1280	mir-23a	CAGTGCAATGTTAAAAGGGC	233
mir-130a	GGGTGAGGAGGCGGGCCGGCATGCCTTTGCTGCTGGCCGGAGCTCTTTTCACATTGTGCTACTGTCTAACGTGTACCGAGCAGTGCAATGTTAAAAGGGCATCGG	1280	hypothetical miRNA-040	CAGTGCAATGTTAAAAGGGCAT	1101

	CCTTGTAGTACTACCCAGTGCCGGCAGCCTCCTCAG				
mir-1d_1	TACCTGCTTGGGACACATACTTCTTTATATGCCCATATGAACCTGCTAAGCTATGGAATGTAAAGAAGTATGTATTTCAGGCTAGGA	1281	mir-132	TGGAATGTAAAGAAGTATGTA	1083
mir-1d_1	TACCTGCTTGGGACACATACTTCTTTATATGCCCATATGAACCTGCTAAGCTATGGAATGTAAAGAAGTATGTATTTCAGGCTAGGA	1281	mir-124a (Kosik)	TGGAATGTAAAGAAGTATGTAT	213
mir-1d_1	TACCTGCTTGGGACACATACTTCTTTATATGCCCATATGAACCTGCTAAGCTATGGAATGTAAAGAAGTATGTATTTCAGGCTAGGA	1281	miR-200b	TGGAATGTAAAGAAGTATGTATT	1134
mir-124a_3	TGAGGGCCCCTCTGCGTGTTCACAGCGGACCTTGATTTAATGTCTATACAATTAAGGCACGCGGTGAATGCCAAGAGAGGCGCCTC	1282	mir-100	TAAGGCACGCGGTGAATGCCA	1104
mir-124a_3	TGAGGGCCCCTCTGCGTGTTCACAGCGGACCTTGATTTAATGTCTATACAATTAAGGCACGCGGTGAATGCCAAGAGAGGCGCCTC	1282	mir-212	TTAAGGCACGCGGTGAATGCCA	235
mir-124a_3	TGAGGGCCCCTCTGCGTGTTCACAGCGGACCTTGATTTAATGTCTATACAATTAAGGCACGCGGTGAATGCCAAGAGAGGCGCCTC	1282	let-7a	TTAAGGCACGCGGTGAATGCCAA	1105
mir-133a_2	AATGCTTTGCTGAAGCTGGTAAAATGGAACCAAATCAGCTGTTGGATGGATTTGGTCCCCTTCAACCAGCTGTAGCTGCGCATTGA	1283	miR-189 (RFAM-Human)	TTGGTCCCCTTCAACCAGCTGT	255
mir-124a_2	ACTCTGCTCTCCGTGTTCACAGCGGACCTTGATTTAATGTCATACAATTAAGGCACGCGGTGAATGCCAAGAGCGGAGC	1284	mir-181c	TAAGGCACGCGGTGAATGCCA	1104
mir-124a_2	ACTCTGCTCTCCGTGTTCACAGCGGACCTTGATTTAATGTCATACAATTAAGGCACGCGGTGAATGCCAAGAGCGGAGC	1284	mir-108	TTAAGGCACGCGGTGAATGCCA	235
mir-124a_2	ACTCTGCTCTCCGTGTTCACAGCGGACCTTGATTTAATGTCATACAATTAAGGCACGCGG	1284	mir-239* (Kosik)	TTAAGGCACGCGGTGAATGCCAA	1105

	TGAATGCCAAGAGCG GAGC				
mir-131_1/mir-9	GCGGGGTTGGTTGTT ATCTTTGGTTATCTA GCTGTATGAGTGGTG TGGAGTCTTCATAAA GCTAGATAACCGAAA GTAAAAATAACCCCA T	1285	mir-325 (rodent)	TAAAGCTAGATAACCGAAAGT	211
mir-131_1/mir-9	GCGGGGTTGGTTGTT ATCTTTGGTTATCTA GCTGTATGAGTGGTG TGGAGTCTTCATAAA GCTAGATAACCGAAA GTAAAAATAACCCCA T	1285	mir-19b	TAAAGCTAGATAACCGAAAGTA	1080
mir-131_1/mir-9	GCGGGGTTGGTTGTT ATCTTTGGTTATCTA GCTGTATGAGTGGTG TGGAGTCTTCATAAA GCTAGATAACCGAAA GTAAAAATAACCCCA T	1285	mir-124a_Ruvkun	TCTTTGGTTATCTAGCTGTATGA	1081
mir-15b	CCTTAAAGTACTGTA GCAGCACATCATGGT TTACATACTACAGTC AAGATGCGAATCATT ATTTGCTGCTCTAGA AATTTAAGGA	1286	mir-152	TAGCAGCACATCATGGTTTAC	1115
mir-15b	CCTTAAAGTACTGTA GCAGCACATCATGGT TTACATACTACAGTC AAGATGCGAATCATT ATTTGCTGCTCTAGA AATTTAAGGA	1286	hypothetical miRNA-111	TAGCAGCACATCATGGTTTACA	246
mir-16_3	TTGTTCCACTCTAGC AGCACGTAAATATTG GCGTAGTGAAATAAA TATTAAACACCAATA TTATTGTGCTGCTTT AGTGTGAC	1287	miR-104 (Mourelatos)	TAGCAGCACGTAAATATTGGCG	196
mir-16_3	TTGTTCCACTCTAGC AGCACGTAAATATTG GCGTAGTGAAATAAA TATTAAACACCAATA TTATTGTGCTGCTTT AGTGTGAC	1287	mir-128a	TAGCAGCACGTAAATATTGGCGT	1176
mir-137	GACTCTCTTCGGTGA CGGGTATTCTTGGGT GGATAATACGGATTA CGTTGTTATTGCTTA AGAATACGCGTAGTC GAGGAGAGT	1288	mir-30b	TATTGCTTAAGAATACGCGTAG	270
mir-101_1	CAGGCTGCCCTGGCT CAGTTATCACAGTGC TGATGCTGTCCATTC TAAAGGTACAGTACT GTGATAACTGAAGGA TGGCAGCC	1289	mir-18	TACAGTACTGTGATAACTGA	265
mir-101_1	CAGGCTGCCCTGGCT CAGTTATCACAGTGC	1289	mir-128b	TACAGTACTGTGATAACTGAAG	1170

	TGATGCTGTCCATTC TAAAGGTACAGTACT GTGATAACTGAAGGA TGGCAGCC				
mir-29a	AGGATGACTGATTTC TTTTGGTGTTCAGAG TCAATAGAATTTTCT AGCACCATCTGAAAT CGGTTATAATG	1291	miR-27a (RFAM- M. mu.)	CTAGCACCATCTGAAATCGGTT	247
mir-29a	AGGATGACTGATTTC TTTTGGTGTTCAGAG TCAATAGAATTTTCT AGCACCATCTGAAAT CGGTTATAATG	1291	mir-153	TAGCACCATCTGAAATCGGTTA	1116
mir-29b_2	AAGCTGGTTTCATAT GGTGGTTTAGATTTA AATAGTGATTGTCTA GCACCATTTGAAATC AGTGTT	1292	mir-138_Ruvkun	TAGCACCATTTGAAATCAGT	1172
mir-29b_2	AAGCTGGTTTCATAT GGTGGTTTAGATTTA AATAGTGATTGTCTA GCACCATTTGAAATC AGTGTT	1292	hypothetical miRNA-075	TAGCACCATTTGAAATCAGTGT	1173
mir-29b_2	AAGCTGGTTTCATAT GGTGGTTTAGATTTA AATAGTGATTGTCTA GCACCATTTGAAATC AGTGTT	1292	miR-30a-s	TAGCACCATTTGAAATCAGTGTT	195
mir-148a	TGAGACAAAGTTCTG AGACACTCCGACTCT GAGTATGATAGAAGT CAGTGCACTACAGAA CTTTGTCTCTAG	1293	miR-1d (Tuschl)	TCAGTGCACTACAGAACTTTGT	288
mir-141	TGGCTGGCTCTGGGT CCATCTTCCAGTGCA GTGTTGGATGGTTGA AGTATGAAGCTCCTA ACACTGTCTGGTAAA GATGGCCCCCGGGTC AGTT	1294	mir-16_Ruvkun	AACACTGTCTGGTAAAGATGG	261
mir-131_3/mir-9	AATGGGAGGCCCGTT TCTCTCTTTGGTTAT CTAGCTGTATGAGTG CCACAGAGCCGTCAT AAAGCTAGATAACCG AAAGTAGAAATGACT CTCAC	1295	mir-124a (Kosik)	TAAAGCTAGATAACCGAAAGT	211
mir-131_3/mir-9	AATGGGAGGCCCGTT TCTCTCTTTGGTTAT CTAGCTGTATGAGTG CCACAGAGCCGTCAT AAAGCTAGATAACCG AAAGTAGAAATGACT CTCAC	1295	mir-7b (rodent)	TAAAGCTAGATAACCGAAAGTA	1080
mir-131_3/mir-9	AATGGGAGGCCCGTT TCTCTCTTTGGTTAT CTAGCTGTATGAGTG CCACAGAGCCGTCAT AAAGCTAGATAACCG AAAGTAGAAATGACT	1295	mir-19a	TCTTTGGTTATCTAGCTGTATGA	1081

	CTCAC				
mir-23a	TCGGACGGCTGGGGTTCCTGGGGATGGGATTTGATGCCAGTCACAAATCACATTGCCAGGGATTTCCAACTGACCC	1296	miR-1 (RFAM)	ATCACATTGCCAGGGATTTCC	289
mir-24_2	TCTGCCTCTCTCCGGGCTCCGCCTCCCGTGCCTACTGAGCTGAAACAGTTGATTCCAGTGCACTGGCTCAGTTCAGCAGGAACAGGAGTCCAGCCCCCTAGGAGCTGGCAA	1297	mir-124a_Ruvkun	TGGCTCAGTTCAGCAGGAACAG	264
mir-140	TCTGTGTCCTGCCAGTGGTTTTACCCTATGGTAGGTTACGTCATGCTGTTCTACCACAGGGTAGAACCACGGACAGGGTACTG	1298	miR-199b (mouse)	AGTGGTTTTACCCTATGGTAG	192
mir-140	TCTGTGTCCTGCCAGTGGTTTTACCCTATGGTAGGTTACGTCATGCTGTTCTACCACAGGGTAGAACCACGGACAGGGTACTG	1298	mir-205	TACCACAGGGTAGAACCACGGA	1065
mir-140	TCTGTGTCCTGCCAGTGGTTTTACCCTATGGTAGGTTACGTCATGCTGTTCTACCACAGGGTAGAACCACGGACAGGGTACTG	1298	mir-26b	TACCACAGGGTAGAACCACGGACA	1066
let-7a_4	TTCCCAGGTTGAGGTAGTAGGTTGTATAGTTTAGAGTTACATCAAGGGAGATAACTGTACAGCCTCCTAGCTTTCCTTGGG	1299	mir-16_Ruvkun	TGAGGTAGTAGGTTGTATAGTT	222
mir-125b_1	GCTCCCCTCAGTCCCTGAGACCCTAACTTGTGATGTTTACCGTTTAAATCCACGGGTTAGGCTCTTGGGAGCTGCGGGTCG	1300	mir-131_Ruvkun	TCCCTGAGACCCTAACTTGTGA	258
mir-26a_1	GAAGGCCGTGGCCTCGTTCAAGTAATCCAGGATAGGCTGTGCAGGTCCCAAGGGGCCTATTCTTGGTTACTTGCACGGGGACGCGGGCCTGGAC	1301	mir-29b	TTCAAGTAATCCAGGATAGGC	1203
mir-26a_1	GAAGGCCGTGGCCTCGTTCAAGTAATCCAGGATAGGCTGTGCAGGTCCCAAGGGGCCTATTCTTGGTTACTTGCACGGGGACGCGGGCCTGGAC	1301	hypothetical miRNA-154	TTCAAGTAATCCAGGATAGGCT	226
let-7i	CACACCATGGCCCTGGCTGAGGTAGTAGTT	1302	hypothetical miRNA-179	TGAGGTAGTAGTTTGTGCT	209

	TGTGCTGTTGGTCGG GTTGTGACATTGCCC GCTGTGGAGATAACT GCGCAAGCTACTGCC TTGCTAGTGCTGGTG AT				
let-7i	CACACCATGGCCCTG GCTGAGGTAGTAGTT TGTGCTGTTGGTCGG GTTGTGACATTGCCC GCTGTGGAGATAACT GCGCAAGCTACTGCC TTGCTAGTGCTGGTG AT	1302	miR-1d (Tuschl)	TGAGGTAGTAGTTTGTGCTGTT	1078
mir-21	GCTGTACCACCTTGT CGGATAGCTTATCAG ACTGATGTTGACTGT TGAATCTCATGGCAA CAGCAGTCGATGGGC TGTCTGACATTTTGG TATC	1303	mir-125b	TAGCTTATCAGACTGATGTTGA	236
mir-22	GGCTGAGCCGCAGTA GTTCTTCAGTGGCAA GCTTTATGTCCTGAC CCAGCTAAAGCTGCC AGTTGAAGAACTGTT GCCCTCTGCCC	1304	mir-131	AAGCTGCCAGTTGAAGAACTGT	215
mir-142	AGACAGTGCAGTCAC CCATAAAGTAGAAAG CACTACTAACAGCAC TGGAGGGTGTAGTGT TTCCTACTTTATGGA TGAGTGCACTGTG	1305	mir-131_Ruvkun	CATAAAGTAGAAAGCACTAC	217
mir-142	AGACAGTGCAGTCAC CCATAAAGTAGAAAG CACTACTAACAGCAC TGGAGGGTGTAGTGT TTCCTACTTTATGGA TGAGTGCACTGTG	1305	hypothetical miRNA-105	TGTAGTGTTTCCTACTTTATGG	1086
mir-142	AGACAGTGCAGTCAC CCATAAAGTAGAAAG CACTACTAACAGCAC TGGAGGGTGTAGTGT TTCCTACTTTATGGA TGAGTGCACTGTG	1305	mir-218	TGTAGTGTTTCCTACTTTATGGA	1087
mir-144	GACCTTGGCTGGGAT ATCATCATATACTGT AAGTTTGTGATGAGA CACTACAGTATAGAT GATGTACTAGTCTGG GTA	1306	mir-26a	TACAGTATAGATGATGTACTAG	237
mir-152	CCGGGCCTAGGTTCT GTGATACACTCCGAC TCGGGCTCTGGAGCA GTCAGTGCATGACAG AACTTGGGCCCGGT	1307	miR-99a (Tuschl)	TCAGTGCATGACAGAACTTGG	282
mir-153_2	ACTTAGCGGTGGCCG GTGTCATTTTTGTGA CGTTGCAGCTAGTAA TATGAGCCCAGTTGC ATAGTCACAAAAGTG	1308	mir-29c	TTGCATAGTCACAAAAGTGA	201

	ATCATTGGAAACTGTG				
let-7a_1	TCTCTTCACTGTGGGATGAGGTAGTAGGTTGTATAGTTTTAGGGTCACACCCACCACTGGGAGATAACTATACAATCTACTGTCTTTCCTAAGGTGATGGA	1309	mir-16	TGAGGTAGTAGGTTGTATAGTT	222
let-7d	AAAATGGGTTCCTAGGAAGAGGTAGTAGGTTGCATAGTTTTAGGGCAGAGATTTTGCCCACAAGGAGTTAACTATACGACCTGCTGCCTTTCTTAGGGCCTTATTAT	1310	mir-144	AGAGGTAGTAGGTTGCATAGT	245
let-7d	AAAATGGGTTCCTAGGAAGAGGTAGTAGGTTGCATAGTTTTAGGGCAGAGATTTTGCCCACAAGGAGTTAACTATACGACCTGCTGCCTTTCTTAGGGCCTTATTAT	1310	hypothetical miRNA-171	AGAGGTAGTAGGTTGCATAGTT	1113
let-7d	AAAATGGGTTCCTAGGAAGAGGTAGTAGGTTGCATAGTTTTAGGGCAGAGATTTTGCCCACAAGGAGTTAACTATACGACCTGCTGCCTTTCTTAGGGCCTTATTAT	1310	miR-204 (Tuschl)	CTATACGACCTGCTGCCTTTCT	1114
let-7f_1	ACTTGCTCTATCAGAGTGAGGTAGTAGATTGTATAGTTGTGGGGTAGTGATTTTACCCTGTTTAGGAGATAACTATACAATCTATTGCCTTCCCTGAGGAGTAGAC	1311	miR-9	TGAGGTAGTAGATTGTATAGT	1098
let-7f_1	ACTTGCTCTATCAGAGTGAGGTAGTAGATTGTATAGTTGTGGGGTAGTGATTTTACCCTGTTTAGGAGATAACTATACAATCTATTGCCTTCCCTGAGGAGTAGAC	1311	hypothetical miRNA-138	TGAGGTAGTAGATTGTATAGTT	231
mir-23b	TCACCTGCTCTGGCTGCTTGGGTTCCTGGCATGCTGATTTGTGACTTGAGATTAAAATCACATTGCCAGGGATTACCACGCAACCATGACCTTGGC	1312	mir-1d	ATCACATTGCCAGGGATTACCAC	208
miR-24-1	GACCCGCCCTCCGGTGCCTACTGAGCTGATATCAGTTCTCATTTCACACACTGGCTCAGTTCAGCAGGAACAGGA	1313	mir-124a (Kosik)	GTGCCTACTGAGCTGATATCAGT	1271

	GTCGAG				
miR-24-1	GACCCGCCCTCCGGT GCCTACTGAGCTGAT ATCAGTTCTCATTTC ACACACTGGCTCAGT TCAGCAGGAACAGGA GTCGAG	1313	hypothetical miRNA-070	TGGCTCAGTTCAGCAGGAACAG	264
mir-27b	CCTCTCTAACAAGGT GCAGAGCTTAGCTGA TTGGTGAACAGTGAT TGGTTTCCGCTTTGT TCACAGTGGCTAAGT TCTGCACCTGAAGAG AAGGTG	1314	miR-29c (Tuschl)	TTCACAGTGGCTAAGTTCTG	202
mir-27b	CCTCTCTAACAAGGT GCAGAGCTTAGCTGA TTGGTGAACAGTGAT TGGTTTCCGCTTTGT TCACAGTGGCTAAGT TCTGCACCTGAAGAG AAGGTG	1314	mir-135	TTCACAGTGGCTAAGTTCTGC	1059
mir- 131_2/mir-9	CCTTGTGAGGGAAGC GAGTTGTTATCTTTG GTTATCTAGCTGTAT GAGTGTATTGGTCTT CATAAAGCTAGATAA CCGAAAGTAAAAACT CCTTCAAGGTCACCG AGG	1315	mir-107	TAAAGCTAGATAACCGAAAGT	211
mir- 131_2/mir-9	CCTTGTGAGGGAAGC GAGTTGTTATCTTTG GTTATCTAGCTGTAT GAGTGTATTGGTCTT CATAAAGCTAGATAA CCGAAAGTAAAAACT CCTTCAAGGTCACCG AGG	1315	miR-224 (RFAM-mouse)	TAAAGCTAGATAACCGAAAGTA	1080
mir- 131_2/mir-9	CCTTGTGAGGGAAGC GAGTTGTTATCTTTG GTTATCTAGCTGTAT GAGTGTATTGGTCTT CATAAAGCTAGATAA CCGAAAGTAAAAACT CCTTCAAGGTCACCG AGG	1315	mir-124a	TCTTTGGTTATCTAGCTGTATGA	1081
mir-15a	AAGTAGCAGCACATA ATGGTTTGTGGATGT TGAAAAGGTGCAGGC CATACTGTGCTGCCT CAAAATACAA	1316	miR-20 (RFAM- Human)	TAGCAGCACATAATGGTTTGT	1151
mir-15a	AAGTAGCAGCACATA ATGGTTTGTGGATGT TGAAAAGGTGCAGGC CATACTGTGCTGCCT CAAAATACAA	1316	miR-92 (RFAM-M.mu.)	TAGCAGCACATAATGGTTTGTG	269
mir-16_1	CCTTAGCAGCACGTA AATATTGGCGTTAAG ATTCTGAAATTACCT CCAGTATTGACTGTG CTGCTGAAGT	1317	mir-98	TAGCAGCACGTAAATATTGGCG	196

mir-16_1	CCTTAGCAGCACGTAAATATTGGCGTTAAGATTCTGAAATTACCTCCAGTATTGACTGTGCTGCTGAAGT	1317	mir-30c_Ruvkun	TAGCAGCACGTAAATATTGGCGT	1176
mir-124a_1	AGGCCTCTCTCTCCGTGTTCACAGCGGACCTTGATTTAAATGTCCATACAATTAAGGCACGCGGTGAATGCCAAGAATGGGGC	1318	miR-132 (RFAM-Human)	TAAGGCACGCGGTGAATGCCA	1104
mir-124a_1	AGGCCTCTCTCTCCGTGTTCACAGCGGACCTTGATTTAAATGTCCATACAATTAAGGCACGCGGTGAATGCCAAGAATGGGGC	1318	miR-140-as	TTAAGGCACGCGGTGAATGCCA	235
mir-124a_1	AGGCCTCTCTCTCCGTGTTCACAGCGGACCTTGATTTAAATGTCCATACAATTAAGGCACGCGGTGAATGCCAAGAATGGGGC	1318	hypothetical miRNA-181	TTAAGGCACGCGGTGAATGCCAA	1105
mir-18	GCTTTTTGTTCTAAGGTGCATCTAGTGCAGATAGTGAAGTAGACTAGCATCTACTGCCCTAAGTGCTCCTTCTGGCATAAG	1319	mir-124a	TAAGGTGCATCTAGTGCAGATA	262
mir-18	GCTTTTTGTTCTAAGGTGCATCTAGTGCAGATAGTGAAGTAGACTAGCATCTACTGCCCTAAGTGCTCCTTCTGGCATAAG	1319	miR-27 (Mourelatos)	TAAGGTGCATCTAGTGCAGATAG	1177
mir-20	TGACAGCTTCTGTAGCACTAAAGTGCTTATAGTGCAGGTAGTGTGTAGCCATCTACTGCATTACGAGCACTTAAAGTACTGCCAGCTGTA	1320	mir-23b	TAAAGTGCTTATAGTGCAGGTA	1126
mir-20	TGACAGCTTCTGTAGCACTAAAGTGCTTATAGTGCAGGTAGTGTGTAGCCATCTACTGCATTACGAGCACTTAAAGTACTGCCAGCTGTA	1320	mir-199a	TAAAGTGCTTATAGTGCAGGTAG	254
mir-30b	TCTAAGCCAAGTTTCAGTTCATGTAAACATCCTACACTCAGCTGTCATACATGCGTTGGCTGGGATGTGGATGTTTACGTCAGCTGTCTTGGAGTATCCAC	1321	miR-31 (Tuschl)	TGTAAACATCCTACACTCAGC	266
mir-30b	TCTAAGCCAAGTTTCAGTTCATGTAAACATCCTACACTCAGCTGTCATACATGCGTTGGCTGGGATGTGGATGTTTACGTCAGCTGTCTTGGAGTATCCAC	1321	mir-18_Ruvkun	TGTAAACATCCTACACTCAGCT	1137

mir-30d	TGCTGTCAGAAAGTCTGTGTCTGTAAACATCCCCGACTGGAAGCTGTAAGCCACAGCCAAGCTTTCAGTCAGATGTTTGCTGCTACTGGCTCTTCGAATGCAT	1322	miR-186	TGTAAACATCCCCGACTGGAAG	240
mir-30d	TGCTGTCAGAAAGTCTGTGTCTGTAAACATCCCCGACTGGAAGCTGTAAGCCACAGCCAAGCTTTCAGTCAGATGTTTGCTGCTACTGGCTCTTCGAATGCAT	1322	let-7i_Ruvkun	TGTAAACATCCCCGACTGGAAGCT	1108
let-7b	GACACCGCAGGGTGAGGTAGTAGGTTGTGTGGTTTCAGGGCAGTGATGTTGCCCCTCCGAAGATAACTATACAACCTACTGCCTTCCCTGAGGCGCCCAG	1323	mir-135	TGAGGTAGTAGGTTGTGTGGTT	212
let-7b	GACACCGCAGGGTGAGGTAGTAGGTTGTGTGGTTTCAGGGCAGTGATGTTGCCCCTCCGAAGATAACTATACAACCTACTGCCTTCCCTGAGGCGCCCAG	1323	mir-133a	TGAGGTAGTAGGTTGTGTGGTTT	1082
let7c_2	GGCCTTTGGGGTGAGGTAGTAGGTTGTATGGTTTTGGGCTCTGCCCCGCTCTGCGGTAACTATACAATCTACTGTCTTTCCTGAAG	1324	let-7d* (RFAM- M. mu.)	TGAGGTAGTAGGTTGTATGGTT	250
let7c_2	GGCCTTTGGGGTGAGGTAGTAGGTTGTATGGTTTTGGGCTCTGCCCCGCTCTGCGGTAACTATACAATCTACTGTCTTTCCTGAAG	1324	hypothetical miRNA-170	TGAGGTAGTAGGTTGTATGGTTT	1120
let-7c_1	AAGCTGTGTGCATCCGGGTTGAGGTAGTAGGTTGTATGGTTTAGAGTTACACCCTGGGAGTTAACTGTACAACCTTCTAGCTTTCCTTGGAGCACACTTGA	1325	let-7d	TGAGGTAGTAGGTTGTATGGTT	250
let-7c_1	AAGCTGTGTGCATCCGGGTTGAGGTAGTAGGTTGTATGGTTTAGAGTTACACCCTGGGAGTTAACTGTACAACCTTCTAGCTTTCCTTGGAGCACACTTGA	1325	miR-135 (RFAM-Human)	TGAGGTAGTAGGTTGTATGGTTT	1120
mir-99 (Mourelatos)	ATGCCCATTGACATAAACCCGTAGATCCGATCTTGTGGTGAAGTGGACCGCGCAAGCTCGTTTCTATGGGTCTGTGGCAGTGTGGTGA	1326	miR-203 (Tuschl)	AACCCGTAGATCCGATCTTGTG	1193
mir-99	ATGCCCATTGACATA	1326	mir-34	ACCCGTAGATCCGATCTTGT	1194

(Mourelatos)	AACCCGTAGATCCGA TCTTGTGGTGAAGTG GACCGCGCAAGCTCG TTTCTATGGGTCTGT GGCAGTGTGGTGA				
LOC 114614 containing miR-155/ hypothetical miRNA-071	TGAAGGCTGTATGCT GTTAATGCTAATTGT GATAGGGGTTTTGGC CTCTGACTGACTCCT ACCTGTTAGCATTAA CAGGACACAAGGCCT GTTA	1327	mir-187	TTAATGCTAATTGTGATAGGGG	1459
let-7e	GCCGCGCCCCCCGGG CTGAGGTAGGAGGTT GTATAGTTGAGGAAG ACACCCGAGGAGATC ACTATACGGCCTCCT AGCTTTCCCCAGGCT GCGCCC	1328	let-7a	TGAGGTAGGAGGTTGTATAGT	249
mir-1d_2	GTTTTCACAGCTATC GGCCGGCGCAGGAGT GCCTACTCAGAGCAC ATACTTCTTTATGTA CCCATATGAACATTC AGTGCTATGGAATGT AAAGAAGTATGTATT TTGGGTAGGTAATGT CCGCCAAGAAGAAGC TAAAGGAAACT	1329	miR-10b (Michael et al)	TGGAATGTAAAGAAGTATGTA	1083
mir-1d_2	GTTTTCACAGCTATC GGCCGGCGCAGGAGT GCCTACTCAGAGCAC ATACTTCTTTATGTA CCCATATGAACATTC AGTGCTATGGAATGT AAAGAAGTATGTATT TTGGGTAGGTAATGT CCGCCAAGAAGAAGC TAAAGGAAACT	1329	miR-139	TGGAATGTAAAGAAGTATGTAT	213
mir-1d_2	GTTTTCACAGCTATC GGCCGGCGCAGGAGT GCCTACTCAGAGCAC ATACTTCTTTATGTA CCCATATGAACATTC AGTGCTATGGAATGT AAAGAAGTATGTATT TTGGGTAGGTAATGT CCGCCAAGAAGAAGC TAAAGGAAACT	1329	mir-124a	TGGAATGTAAAGAAGTATGTATT	1134
mir-133a_1	GCAATGCTTTGCTAA AGCTGGTAAAATGGA ACCAAATCGCCTCTT CAATGGATTTGGTCC CCTTCAACCAGCTGT AGCTATGCATTGAT	1330	mir-24	TTGGTCCCCTTCAACCAGCTGT	255
mir-143	CCTGCGTGCGGAGCG CCTGTCTCCCAGCCT GAGGTGCAGTGCTGC ATCTCTGGTCAGTTG GGAGTCTGAGATGAA GCACTGTAGCTCAGG	1331	miR-15b (Michael et al)	TGAGATGAAGCACTGTAGCTC	1088

	AAGGGAGAAGATGTC CTGCAGCC				
mir-143	CCTGCGTGCGGAGCG CCTGTCTCCCAGCCT GAGGTGCAGTGCTGC ATCTCTGGTCAGTTG GGAGTCTGAGATGAA GCACTGTAGCTCAGG AAGGGAGAAGATGTC CTGCAGCC	1331	mir-253* (Kosik)	TGAGATGAAGCACTGTAGCTCA	220
mir-145	TTGTCCTCACGGTCC AGTTTTCCCAGGAAT CCCTTGGATGCTAAG ATGGGGATTCCTGGA AATACTGTTCTTGAG GTCATG	1332	mir-148b	GTCCAGTTTTCCCAGGAATCC	1122
mir-145	TTGTCCTCACGGTCC AGTTTTCCCAGGAAT CCCTTGGATGCTAAG ATGGGGATTCCTGGA AATACTGTTCTTGAG GTCATG	1332	let-7f	GTCCAGTTTTCCCAGGAATCCCTT	252
mir-122a	TTCCTTAGCAGAGCT GTGGAGTGTGACAAT GGTGTTTGTGTCCAA ACCATCAAACGCCAT TATCACACTAAATAG CTACTG	1333	miR-172 (RFAM-M. mu.)	TGGAGTGTGACAATGGTGTTTG	1084
mir-122a	TTCCTTAGCAGAGCT GTGGAGTGTGACAAT GGTGTTTGTGTCCAA ACCATCAAACGCCAT TATCACACTAAATAG CTACTG	1333	mir-124a_Ruvkun	TGGAGTGTGACAATGGTGTTTGT	214
mir-19b_2	CAGCGCAAGGACATT GCTACTTACGATTAG TTTTGCAGATTTGCA GTTCAGCGTATATGT GAATATATGGCTGTG CAAATCCATGCAAAA CTGATTGTGGGAATG TGTACCTTTCTGCA	1334	mir-22	TGTGCAAATCCATGCAAAACTGA	241
let-7f_2	CTGGTGCTCTGTGGG ATGAGGTAGTAGATT GTATAGTTTTAGGGT CATACCCCATCTTGG AGATAACTATACAGT CTACTGTCTTTCCCA CGGTGGTACAC	1335	hypothetical miRNA-137	TGAGGTAGTAGATTGTATAGT	1098
let-7f_2	CTGGTGCTCTGTGGG ATGAGGTAGTAGATT GTATAGTTTTAGGGT CATACCCCATCTTGG AGATAACTATACAGT CTACTGTCTTTCCCA CGGTGGTACAC	1335	mir-131	TGAGGTAGTAGATTGTATAGTT	231
mir-26a_2	CTACTGTGGAGGCTG CGGCTGGATTCAAGT AATCCAGGATAGGCT GTGTCCGTCCATGAG GCCTGTTCTTGATTA	1336	mir-29a_Ruvkun	TTCAAGTAATCCAGGATAGGC	1203

	CTTGTTTCTGGAGGC AGCGCATGGTCTG				
mir-26a_2	CTACTGTGGAGGCTG CGGCTGGATTCAAGT AATCCAGGATAGGCT GTGTCCGTCCATGAG GCCTGTTCTTGATTA CTTGTTTCTGGAGGC AGCGCATGGTCTG	1336	hypothetical miRNA-153	TTCAAGTAATCCAGGATAGGCT	226
mir-127	TTTGATCACTGTCTC CAGCCTGCTGAAGCT CAGAGGGCTCTGATT CAGAAAGATCATCGG ATCCGTCTGAGCTTG GCTGGTCGGAAGTCT CATCATCT	1337	mir-103	TCGGATCCGTCTGAGCTTGG	1204
mir-127	TTTGATCACTGTCTC CAGCCTGCTGAAGCT CAGAGGGCTCTGATT CAGAAAGATCATCGG ATCCGTCTGAGCTTG GCTGGTCGGAAGTCT CATCATCT	1337	mir-17as/mir-91	TCGGATCCGTCTGAGCTTGGCT	1205
mir-136	GAGCCCTCGGAGGAC TCCATTTGTTTTGAT GATGGATTCTTAAGC TCCATCATCGTCTCA AATGAGTCTTCAGAG GGTTC	1338	mir-91_Ruvkun	ACTCCATTTGTTTTGATGATGGA	1206
mir-154	CGGTGCTTGAAGATA GGTTATCCGTGTTGC CTTCGCTTTATTCGT GACGAATCATACACG GTTGACCTATTTTTC AGTACCAA	1339	mir-17-3p (mouse)	TAGGTTATCCGTGTTGCCTTCG	1207
mir-149	CCAGTGCCCAGGCTC TGGCTCCGTGTCTTC ACTCCCGTGTTTGTC CGAGGAGGGAGGGAG GGACGGGGGCGGTGC TGGGGCAACT	1340	let-7gL_Ruvkun	TCTGGCTCCGTGTCTTCACTCC	1200
mir-30c_2	ACCATGTTGTAGTGT GTGTAAACATCCTAC ACTCTCAGCTGTGAG CTCAAGGTGGCTGGG AGAGGGTTGTTTACT CCTTCTGCCATGGAA A	1341	miR-31 (RFAM-M.mu.)	TGTAAACATCCTACACTCTCAGC	280
mir-30c_2	ACCATGTTGTAGTGT GTGTAAACATCCTAC ACTCTCAGCTGTGAG CTCAAGGTGGCTGGG AGAGGGTTGTTTACT CCTTCTGCCATGGAA A	1341	let-7c	TGTAAACATCCTACACTCTCAGCT	1129
mir-99b	GTCCTGGCACCCACC CGTAGAACCGACCTT GCGGGGCCTTCGCCG CACACAAGCTCGTGT CTGTGGGTCCGTGTC GGGGGC	1342	mir-101b (rodent)	CACCCGTAGAACCGACCTTGCG	1201

MiR-125a	CCGGCCTCTGGGTCC CTGAGACCCTTTAAC CTGTGAGGACGTCCA GGGTCACAGGTGAGG TTCTTGGGAGCCTGG CGCCTGGCCCAGCCA CAAATTTAGGGATTT CAGGTGACCCCTGGC AA	1343	mir-106 (mouse)	TCCCTGAGACCCTTTAACCTGTG	1202
MiR-125b_2	ACTTTGCCTAGTCCC TGAGACCCTAACTTG TGAGGTATTTTAGTA ACATCACAAGTCAGG TTCTTGGGACCTAGG CGGAGG	1344	miR-9	TCCCTGAGACCCTAACTTGTGA	258
mir-221	TGAACATCCAGGTCT GGGGCATGAACCTGG CATACAATGTAGATT TCTGTGTTTGTTAGG CAACAGCTACATTGT CTGCTGGGTTTCAGG CTACCTGGAA	1345	miR-200a (RFAM-Human)	AGCTACATTGTCTGCTGGGTTT	1106
mir-221	TGAACATCCAGGTCT GGGGCATGAACCTGG CATACAATGTAGATT TCTGTGTTTGTTAGG CAACAGCTACATTGT CTGCTGGGTTTCAGG CTACCTGGAA	1345	miR-26a (Michael et al)	AGCTACATTGTCTGCTGGGTTTC	238
mir-203	GGTCCAGTGGTTCTT GACAGTTCAACAGTT CTGTAGCACAATTGT GAAATGTTTAGGACC ACTAGACCCGGCGCG CACGGCG	1346	mir-10b	GTGAAATGTTTAGGACCACTAG	197
mir-203	GGTCCAGTGGTTCTT GACAGTTCAACAGTT CTGTAGCACAATTGT GAAATGTTTAGGACC ACTAGACCCGGCGCG CACGGCG	1346	mir-128 (Kosik)	TGAAATGTTTAGGACCACTAG	1068
mir-203	GGTCCAGTGGTTCTT GACAGTTCAACAGTT CTGTAGCACAATTGT GAAATGTTTAGGACC ACTAGACCCGGCGCG CACGGCG	1346	mir-204	TGAAATGTTTAGGACCACTAGA	1069
let-7g	TTTGCCTGATTCCAG GCTGAGGTAGTAGTT TGTACAGTTTGAGGG TCTATGATACCACCC GGTACAGGAGATAAC TGTACAGGCCACTGC CTTGCCAGGAACAG	1347	hypothetical miRNA-176	TGAGGTAGTAGTTTGTACAGT	285
let-7g	TTTGCCTGATTCCAG GCTGAGGTAGTAGTT TGTACAGTTTGAGGG TCTATGATACCACCC GGTACAGGAGATAAC TGTACAGGCCACTGC CTTGCCAGGAACAG	1347	mir-1d	TGAGGTAGTAGTTTGTACAGTT	1152

mir-101_3	ATCTGAGACTGAACTGCCCTTTTTCGGTTATCATGGTACCGATGCTGTAGCTCTGAAAGGTACAGTACTGTGATAGCTGAAGAATGGCGGTGCCATC	1348	miR-200a	TACAGTACTGTGATAGCTGAAG	1460
mir-106	ATGTCAAAGTGCTAACAGTGCAGGTAGCTTTTTGAGTTCTACTGCAGTGCCAGCACTTCTTACAT	1349	miR-200a (RFAM- M. mu.)	CAAAGTGCTAACAGTGCAGGTA	1461
mir-17/mir-91	GTCAGAATAATGTCAAAGTGCTTACAGTGCAGGTAGTGATGTGTGCATCTACTGCAGTGAGGGCACTTGTAGCATTATGCTGAC	1350	mir-123/mir-126as	ACTGCAGTGAGGGCACTTGT	1462
mir-17/mir-91	GTCAGAATAATGTCAAAGTGCTTACAGTGCAGGTAGTGATGTGTGCATCTACTGCAGTGAGGGCACTTGTAGCATTATGCTGAC	1350	mir-227* (Kosik)	CAAAGTGCTTACAGTGCAGGTAG	1181
mir-17/mir-91	GTCAGAATAATGTCAAAGTGCTTACAGTGCAGGTAGTGATGTGTGCATCTACTGCAGTGAGGGCACTTGTAGCATTATGCTGAC	1350	miR-195	CAAAGTGCTTACAGTGCAGGTAGT	204
mir-199b	CCAGAGGATACCTCCACTCCGTCTACCCAGTGTTTAGACTACCTGTTCAGGACTCCCAAATTGTACAGTAGTCTGCACATTGGTTAGGCTGGGCTGGGTTAGACCCTCGG	1351	mir-226* (Kosik)	CCCAGTGTTTAGACTACCTGTTC	1463
mir-199b	CCAGAGGATACCTCCACTCCGTCTACCCAGTGTTTAGACTACCTGTTCAGGACTCCCAAATTGTACAGTAGTCTGCACATTGGTTAGGCTGGGCTGGGTTAGACCCTCGG	1351	mir-217 (rodent)	TACAGTAGTCTGCACATTGGTT	1118
hypothetical miRNA 105	GTTCCTTTTTCCTATGCATATACTTCTTTGTGGATCTGGTCTAAAGAGGTATAGCGCATGGGAAGATGGAGC	1352	mir-324-3p_Ruvkun	AGAGGTATAGCGCATGGGAAGA	1464
hypothetical miRNA 105	GTTCCTTTTTCCTATGCATATACTTCTTTGTGGATCTGGTCTAAAGAGGTATAGCGCATGGGAAGATGGAGC	1352	miR-127	TTCCTATGCATATACTTCTTT	1132
mir-211	CTGCTTGGACCTGTGACCTGTGGGCTTCCCTTTGTCATCCTTTGCCTAGGCCTCTGAGTGAGGCAAGGACAGCAA	1353	mir-244* (Kosik)	TTCCCTTTGTCATCCTTTGCCT	1465

	AGGGGGGCTCAGTGG TCACCTCTACTGCAG A				
mir-217	AAACATAGTCATTAC AGTTTTTGATGTTGC AGATACTGCATCAGG AACTGACTGGATAAG ACTTAATCCCCATCA GTTCCTAATGCATTG CCTTCAGCATCTAAA CAA	1354	mir-224* (Kosik)	TACTGCATCAGGAACTGACTGGAT	1466
mir-224 (Sanger)	GGGCTTTTAAGTCAC TAGTGGTTCCGTTTA GTAGATGGTTTGTGC ATTGTTTCAAAATGG TGCCCTAGTGACTAC AAAGCCC	1355	mir-248* (Kosik)	TAAGTCACTAGTGGTTCCGTTTA	1467
mir-7_3	AGGAGCGGAGTACGT GAGCCAGTGCTATGT GGAAGACTTGTGATT TTGTTGTTCTGATAT GATATGACAACAAGT CACAGCCAGCCTCAT AGCGTGGACTCCTAT CACCTT	1356	mir-138	TGGAAGACTTGTGATTTTGTT	1468
mir-325 (Ruvkun)	ATATAGTGCTTGGTT CCTAGTAGGTGCTCA GTAAGTGTTTGTGAC ATAATTCGTTTATTG AGCACCTCCTATCAA TCAAGCACTGTGCTA GGCTCTGG	1357	mir-138_Ruvkun	CCTAGTAGGTGCTCAGTAAGTGT	1469
mir-326 (Ruvkun)	CTCATCTGTCTGTTG GGCTGGGGGCAGGGC CTTTGTGAAGGCGGG TTATGCTCAGATCGC CTCTGGGCCCTTCCT CCAGTCCCGAGGCAG ATTTA	1358	mir-181b	CCTCTGGGCCCTTCCTCCAG	1263
mir-326 (Ruvkun)	CTCATCTGTCTGTTG GGCTGGGGGCAGGGC CTTTGTGAAGGCGGG TTATGCTCAGATCGC CTCTGGGCCCTTCCT CCAGTCCCGAGGCAG ATTTA	1358	miR-298	CCTCTGGGCCCTTCCTCCAGT	1470
mir-329-1 (Ruvkun)	TGTTCGCTTCTGGTA CCGGAAGAGAGGTTT TCTGGGTCTCTGTTT CTTTGATGAGAATGA AACACACCCAGCTAA CCTTTTTTTCAGTAT CAAATCC	1359	mir-103	AACACACCCAGCTAACCTTTTT	1471
mir-330 (Ruvkun)	GACCCTTTGGCGATC TCTGCCTCTCTGGGC CTGTGTCTTAGGCTC TTCAAGATCCAACGA GCAAAGCACAGGGCC TGCAGAGAGGTAGCG CTCTGCTC	1360	miR-134 (RFAM-Human)	GCAAAGCACAGGGCCTGCAGAGA	1472
mir-337	CAGTGTAGTGAGAAG	1361	miR-146	TTCAGCTCCTATATGATGCCTTT	1473

(Ruvkun)	TTGGGGGGTGGGAAC GGCGTCATGCAGGAG TTGATTGCACAGCCA TTCAGCTCCTATATG ATGCCTTTCTTCACC CCCTTCA		(RFAM- Human)		
mir-345 (Ruvkun)	ACCCAAGTCCAGGCC TGCTGACCCCTAGTC CAGTGCTTGTGGTGG CTACTGGGCCCTGAA CTAGGGGTCTGGAGA CCTGGGTTTGATCTC CACAGG	1362	miR-30e (RFAM- M.mu.)	TGCTGACCCCTAGTCCAGTGC	1474
mir-346 (Ruvkun)	TCTGTGTTGGGCGTC TGTCTGCCCGAGTGC CTGCCTCTCTGTTGC TCTGAAGGAGGCAGG GGCTGGGCCTGCAGC TGCCTGGGCAGAGCT GCTCCTTC	1363	miR-97 (Michael et al)	TGTCTGCCCGAGTGCCTGCCTCT	1475
mir-151* (Ruvkun)	AGCGCTTTCCTGCCC TCGAGGAGCTCACAG TCTAGTATGTCTCCT CCCTACTAGACTGAG GCTCCTTGAGGACAG GGATCGTCATACTCA CCTCC	1364	miR-193	ACTAGACTGAGGCTCCTTGAGG	1476
mir-151* (Ruvkun)	AGCGCTTTCCTGCCC TCGAGGAGCTCACAG TCTAGTATGTCTCCT CCCTACTAGACTGAG GCTCCTTGAGGACAG GGATCGTCATACTCA CCTCC	1364	mir-340 (Ruvkun)	CTAGACTGAGGCTCCTTGAGG	1477
mir-151* (Ruvkun)	AGCGCTTTCCTGCCC TCGAGGAGCTCACAG TCTAGTATGTCTCCT CCCTACTAGACTGAG GCTCCTTGAGGACAG GGATCGTCATACTCA CCTCC	1364	miR-299 (RFAM- M.mu.)	TCGAGGAGCTCACAGTCTAGTA	1256
mir_34b (RFAM)	GTGCTCGGTTTGTAG GCAGTGTAATTAGCT GATTGTAGTGCGGTG CTGACAATCACTAAC TCCACTGCCATCAAA ACAAGGCAC	1365	mir-331 (Ruvkun)	TAGGCAGTGTAATTAGCTGATTG	1478
glutamate receptor, ionotrophic, AMPA 3/ hypothetical miRNA-033	TGGTGTGGCAACCCC TAAAGGCTCAGCATT AAGGTGGGTGGAATA ATATAACAATATCCG TGTTGTTATAGTATT CCACCTACCCTGATG CATTTTGTTGTCGTT TTCTT	1366	miR-143 (Michael et al)	TGTTATAGTATTCCACCTACC	1060
mir-34	GGCCAGCTGTGAGTA ATTCTTTGGCAGTGT CTTAGCTGGTTGTTG TGAGTATTAGCTAAG GAAGCAATCAGCAAG TATACTGCCCTAGAA	1367	mir-138	TGGCAGTGTCTTAGCTGGTTGT	194

	GTGCTGCACATTGTT GGGCC				
mir-34	GGCCAGCTGTGAGTA ATTCTTTGGCAGTGT CTTAGCTGGTTGTTG TGAGTATTAGCTAAG GAAGCAATCAGCAAG TATACTGCCCTAGAA GTGCTGCACATTGTT GGGCC	1367	mir-30a	TGGCAGTGTCTTAGCTGGTTGTT	1067
mir-7_1/mir-7_1*	TTGGATGTTGGCCTA GTTCTGTGTGGAAGA CTAGTGATTTTGTTG TTTTTAGATAACTAA AACGACAACAAATCA CAGTCTGCCATATGG CACAGGCCA	1368	mir-191_Ruvkun	CAACAAATCACAGTCTGCCATA	1070
mir-7_1/mir-7_1*	TTGGATGTTGGCCTA GTTCTGTGTGGAAGA CTAGTGATTTTGTTG TTTTTAGATAACTAA AACGACAACAAATCA CAGTCTGCCATATGG CACAGGCCA	1368	mir-29b	TGGAAGACTAGTGATTTTGTT	198
mir-10b	GAGGTTGTAACGTTG TCTATATATACCCTG TAGAACCGAATTTGT GTGGTACCCACATAG TCACAGATTCGATTC TAGGGGAATATATGG TCGATGCAAAAACTT CA	1369	mir-210	CCCTGTAGAACCGAATTTGTGT	1071
mir-10b	GAGGTTGTAACGTTG TCTATATATACCCTG TAGAACCGAATTTGT GTGGTACCCACATAG TCACAGATTCGATTC TAGGGGAATATATGG TCGATGCAAAAACTT CA	1369	miR-29b (RFAM-M.mu.)	TACCCTGTAGAACCGAATTTGT	199
mir-10b	GAGGTTGTAACGTTG TCTATATATACCCTG TAGAACCGAATTTGT GTGGTACCCACATAG TCACAGATTCGATTC TAGGGGAATATATGG TCGATGCAAAAACTT CA	1369	mir-34b (mouse)	TACCCTGTAGAACCGAATTTGTG	1072
mir-132	GCCCCGCCCCCGCGT CTCCAGGGCAACCGT GGCTTTCGATTGTTA CTGTGGGAACCGGAG GTAACAGTCTACAGC CATGGTCGCCCCGCA GCACGCCCACGC	1370	mir-130a	TAACAGTCTACAGCCATGGTCG	1077
mir-132	GCCCCGCCCCCGCGT CTCCAGGGCAACCGT GGCTTTCGATTGTTA CTGTGGGAACCGGAG GTAACAGTCTACAGC CATGGTCGCCCCGCA	1370	miR-196 (Tuschl)	TAACAGTCTACAGCCATGGTCGC	206

	GCACGCCCACGC				
mir-108_1	CCGATGCACACTGCA AGAACAATAAGGATT TTTAGGGGCATTATG ACTGAGTCAGGAAAC ACAGCTGCCCCTGAA AGTCCCTCATTTTTC TTGCTGTCCTTGA	1371	mir-130 (Kosik)	ATAAGGATTTTTAGGGGCATT	207
mir-212	CCCCGCCCGGGCAGC GCGCCGGCACCTTGG CTCTAGACTGCTTAC TGCCCGGGCCGCCTT CAGTAACAGTCTCCA GTCACGGCCACCGAC GCCTGGCCCCGCC	1372	miR-1 (RFAM)	TAACAGTCTCCAGTCACGGCC	210
hypothetical miRNA 023	AGATTTAATTAGCTC AGAGAAGAAATGTTG CTTGGGCAAGAGGAC TTTTTAATTATCAGC TTGGATAAATTTGAA AATGTTGATGCCTAG GGGTTGAGTTAATTA AAACC	26	mir-143	TGGGCAAGAGGACTTTTTAAT	1079
mir-214	GGCCTGGCTGGACAG AGTTGTCATGTGTCT GCCTGTCTACACTTG CTGTGCAGAACATCC GCTCACCTGTACAGC AGGCACAGACAGGCA GTCACATGACAACCC AGCCT	37	mir-15b	ACAGCAGGCACAGACAGGCAG	219
hypothetical miRNA 040	GCCAGCAAATAATGG CTGTTGTATTAGCTG CTTTTGATGATAGTA TGAAAGAAGTATTAG CACTTGTCAACAAAA CTGCTTACAACATAA CATTAGCATGCATGG GCTGC	43	mir-145	TGTCAACAAAACTGCTTACAA	1092
hypothetical miRNA 043	CCCCTTATAGGCTCG TTTTGACAGGAAATC TTTGAGAGGCAGCGG CAGTGAGGTGCCCAG AGATTTCATCTCTCT TTTGCTTTAGGAAAT GCTGAGCATAAGGCT CC	1373	miR-145 (Michael et al)	TGACAGGAAATCTTTGAGAGG	1094
mir-205	CAGACAATCCATGGG TCCTCTTGTCCTTCA TTCCACCGGAGTCTG TCTTATGCCAACCAG ATTTCAGTGGAGTGA AGCTCAGGAGGCATG GAGCTG	1374	mir-101	TCCTTCATTCCACCGGAGTCTG	224
mir-33a	ACCTCCTGGCGGGCA GCTGTGGTGCATTGT AGTTGCATTGCATGT TCTGGCAATACCTGT GCAATGTTTCCACAG TGCATCACGGAGGCC TGCC	1375	miR-29b (RFAM-M.mu.)	GTGCATTGTAGTTGCATTG	227

mir-196_2	TGCTTGCTCAGCTGATCTGTGGCTTAGGTAGTTTCATGTTGTTGGGATTGAGTTTTGAACTCGGCAACAAGAAACTGCCTGAGTTACATCAGTCGGTTTTCGTCGAGGGC	1376	mir-7-1*_Ruvkun	TAGGTAGTTTCATGTTGTTGG	1097
mir-196_2	TGCTTGCTCAGCTGATCTGTGGCTTAGGTAGTTTCATGTTGTTGGGATTGAGTTTTGAACTCGGCAACAAGAAACTGCCTGAGTTACATCAGTCGGTTTTCGTCGAGGGC	1376	mir-148a	TAGGTAGTTTCATGTTGTTGGG	228
hypothetical miRNA 055	TTGAACATGATGAATGATTGGAGTCAGAGAAGCGGCGTGATAGATGGCAGCACCTTGGCTCCATTGCATGCCCTATTGATTCTCCTTCTTTATTACTCCTACAACCCAGC	1377	mir-122a	TTGCATGCCCTATTGATTCTC	1099
hypothetical miRNA 058	TATCATCTTGTCAGATGCTTAATGTTCTTCCTCCTGTCACTTTGGATAGGCCCAATTTGTAGAATACTGCACGGGTAAAGGATGACAATTAACAGTGACA	1378	miR-122a,b (Tuschl)	TGTCAGATGCTTAATGTTCTT	1102
mir-218_1	GTGATAATGGAGCGAGATTTTCTGTTGTGCTTGATCTAACCATGTGCTTGCGAGGTATGAGAAAAACATGGTTCCGTCAAGCACCATGGAACGTCACGCAGCTTTCTACA	1379	mir-140	TTGTGCTTGATCTAACCATGT	234
mir-218_1	GTGATAATGGAGCGAGATTTTCTGTTGTGCTTGATCTAACCATGTGCTTGCGAGGTATGAGAAAAACATGGTTCCGTCAAGCACCATGGAACGTCACGCAGCTTTCTACA	1379	mir-196	TTGTGCTTGATCTAACCATGTG	1103
mir-222	CCCTCAGTGGCTCAGTAGCCAGTGTAGATCCTGTCTTTGGTAATCAGCAGCTACATCTGGCTACTGGGTCTCTGGTGGCATCATCTAGCT	1380	miR-200b (Michael et al)	AGCTACATCTGGCTACTGGGTCT	1107
mir-222	CCCTCAGTGGCTCAGTAGCCAGTGTAGATCCTGTCTTTGGTAATCAGCAGCTACATCTGGCTACTGGGTCTCTGGTGGCATCATCTAGCT	1380	let-7i	AGCTACATCTGGCTACTGGGTCTC	239
mir-128b	CCCGGCAGCCACTGTGCAGTGGGAAGGGGG	1381	mir-142	TCACAGTGAACCGGTCTCTTT	1073

	GCCGATGCACTGTAAGAGAGTGAGTAGCAGGTCTCACAGTGAACCGGTCTCTTTCCCTACTGTGTCAAACTCCTAA				
mir-128b	CCCGGCAGCCACTGTGCAGTGGGAAGGGGGGCCGATGCACTGTAAGAGAGTGAGTAGCAGGTCTCACAGTGAACCGGTCTCTTTCCCTACTGTGTCAAACTCCTAA	1381	hypothetical miRNA-023	TCACAGTGAACCGGTCTCTTTC	242
mir-219_2	GGGCCCTGAACTCAGGGGCTTCGCCACTGATTGTCCAAACGCAATTCTTGTACGAGTCTGCGGCCAACCGAGAATTGTGGCTGGACATCTGTGGTTGAGCTCCGGGC	1382	mir-30b_Ruvkun	TGATTGTCCAAACGCAATTCT	271
hypothetical miRNA 070	GATGCTTGATGTTGTCAGACTGAAGAATCTCTACAGGTAAGTGTGTGGTTTCTTCAGTGACATCACATTTGCCTGCAGAGATTTCCCAGTCTGCCA	1383	mir-19b	TCACATTTGCCTGCAGAGATT	1109
mir-129_2	CTGCCTTTCGCGAATCTTTTTGCGGTCTGGGCTTGCTGTACATAACTCAATAGCCGGAAGCCCTTACCCCAAAAAGCATTCGCGGAGGGCGCGCTCG	1384	miR-196 (Tuschl)	AAGCCCTTACCCCAAAAAGCAT	1110
mir-129_2	CTGCCTTTCGCGAATCTTTTTGCGGTCTGGGCTTGCTGTACATAACTCAATAGCCGGAAGCCCTTACCCCAAAAAGCATTCGCGGAGGGCGCGCTCG	1384	mir-128 (Kosik)	CTTTTTGCGGTCTGGGCTTGC	243
mir-129_2	CTGCCTTTCGCGAATCTTTTTGCGGTCTGGGCTTGCTGTACATAACTCAATAGCCGGAAGCCCTTACCCCAAAAAGCATTCGCGGAGGGCGCGCTCG	1384	miR-142-as	CTTTTTGCGGTCTGGGCTTGCT	1111
mir-133b	GCCCCCTGCTCTGGCTGGTCAAACGGAACCAAGTCCGTCTTCCTGAGAGGTTTGGTCCCCTTCAACCAGCTACAGCAGGGCTGGCAA	1385	miR-142as (Michael et al)	TTGGTCCCCTTCAACCAGCTA	244
hypothetical miRNA 075	AGCGCAGCTTTAATTACTCATGCTGCTGGTTAAAATATTAATGGGGCACAGAGTGTTGCATGCTCATTTCTGTTG	78	let-7f	TGGTTAAAATATTAATGGGGC	1112

	ATTTTTAATTAGCAG TAATTCATTTTGCAC AAAGC				
hypothetical miRNA 079	CCTGCCTGCTTCTGT GTGATATGTTTGATA TTGGGTTGTTAAATT ATGAACCAACTGAAT GTCAAGCATACTCTC ACAGCAG	1386	let-7f (Michael et al)	TGATATGTTTGATATTGGG	1117
mir-204	GGCTACAGTCCTTCT TCATGTGACTCGTGG ACTTCCCTTTGTCAT CCTATGCCTGAGAAT ATATGAAGGAGGCTG GGAAGGCAAAGGGAC GTTCAATTGTCATCA CTGGC	1387	let-7d_Ruvkun	TTCCCTTTGTCATCCTATGCCT	251
mir-204	GGCTACAGTCCTTCT TCATGTGACTCGTGG ACTTCCCTTTGTCAT CCTATGCCTGAGAAT ATATGAAGGAGGCTG GGAAGGCAAAGGGAC GTTCAATTGTCATCA CTGGC	1387	miR-10b (Tuschl)	TTCCCTTTGTCATCCTATGCCTG	1121
mir-213/ mir-181a_2	AGGTTGCTTCAGTGA ACATTCAACGCTGTC GGTGAGTTTGGAATT CAAATAAAAACCATC GACCGTTGATTGTAC CCTATAGCTAACCAT CATCTACTCCA	1388	mir-137	AACATTCAACGCTGTCGGTGAG	1096
mir-213/ mir-181a_2	AGGTTGCTTCAGTGA ACATTCAACGCTGTC GGTGAGTTTGGAATT CAAATAAAAACCATC GACCGTTGATTGTAC CCTATAGCTAACCAT CATCTACTCCA	1388	hypothetical miRNA-043	AACATTCAACGCTGTCGGTGAGT	223
mir-213/ mir-181a_2	AGGTTGCTTCAGTGA ACATTCAACGCTGTC GGTGAGTTTGGAATT CAAATAAAAACCATC GACCGTTGATTGTAC CCTATAGCTAACCAT CATCTACTCCA	1388	let-7f (Michael et al)	ACCATCGACCGTTGATTGTACC	253
hypothetical miRNA 090	CAGCGATACATTAAT GCTCATCTGGCTCTG CAAATCTTACCGTTT GCTTAGGCCAAATGG CGCATCAATGACTAT CGCTCTTTACAAAAC TCTTGAATCAGTGTT ATGTAA	1389	mir-26a	TAGGCCAAATGGCGCATCAAT	1124
mir-138_2	TTCTGGTATGGTTGC TGCAGCTGGTGTTGT GAATCAGGCCGACGA GCAGCGCATCCTCTT ACCCGGCTATTTCAC GACACCAGGGTTGCA CCCTACCCATCCTC	1390	mir-92	AGCTGGTGTTGTGAATC	256

mir-138_2	TTCTGGTATGGTTGC TGCAGCTGGTGTTGT GAATCAGGCCGACGA GCAGCGCATCCTCTT ACCCGGCTATTTCAC GACACCAGGGTTGCA CCCTACCCATCCTC	1390	miR-27* (Michael et al)	AGCTGGTGTTGTGAATCAGGCCG	1127
mir-196_1	TGGAGCTGCTGAGTG AATTAGGTAGTTTCA TGTTGTTGGGCCTGG ATTTCTGAACACAAC GACATTAAACCACCC GACTCACGGCAGCTA CTGCTCC	1391	miR-29b (RFAM-Human)	TAGGTAGTTTCATGTTGTTGG	1097
mir-196_1	TGGAGCTGCTGAGTG AATTAGGTAGTTTCA TGTTGTTGGGCCTGG ATTTCTGAACACAAC GACATTAAACCACCC GACTCACGGCAGCTA CTGCTCC	1391	mir-7	TAGGTAGTTTCATGTTGTTGGG	228
mir-199a_2	GGAAGCTTCAGGAGA TCCTGCTCCGTCGCC CCAGTGTTCAGACTA CCTGTTCAGGACAAT GCCGTTGTACAGTAG TCTGCACATTGGTTA GACTGGGCAAGGG	1392	miR-202 (mouse)	CCCAGTGTTCAGACTACCTGTT	1128
mir-199a_2	GGAAGCTTCAGGAGA TCCTGCTCCGTCGCC CCAGTGTTCAGACTA CCTGTTCAGGACAAT GCCGTTGTACAGTAG TCTGCACATTGGTTA GACTGGGCAAGGG	1392	mir-15a	CCCAGTGTTCAGACTACCTGTTC	259
mir-199a_2	GGAAGCTTCAGGAGA TCCTGCTCCGTCGCC CCAGTGTTCAGACTA CCTGTTCAGGACAAT GCCGTTGTACAGTAG TCTGCACATTGGTTA GACTGGGCAAGGG	1392	mir-211 (rodent)	TACAGTAGTCTGCACATTGGTT	1118
mir-181b_1	AAAGGTCACAATCAA CATTCATTGCTGTCG GTGGGTTGAACTGTG TAGAAAAGCTCACTG AACAATGAATGCAAC TGTGGCCCCGCTT	1393	mir-16	AACATTCATTGCTGTCGGTGGGTT	260
hypothetical miRNA 101	GTATATTCAAGGACA GGCCATTGACAGTCA ATTAACAAGTTTGAT TGGTATGTCAACTCA TTCTTTTGAATTGTT AATAGTATGTTAATA GCATTCGTTTCTTTG TGCAG	1394	miR-26a (Michael et al)	TGACAGTCAATTAACAAGTTT	1130
hypothetical miRNA 111	CTCTGGCCTCCGCTT CCTCCTCCTCCGACT CGGACGCCGGCGGAG CCTCCCCGCCCCCGC GAAAGAAGCCCCGAG	1395	mir-127_Ruvkun	TTCCTCCTCCTCCGACTCGGA	1135

	CCTCGGCGGCGGAGG GAGCAGGAGAGCCCG GGGC				
mir-218_2	GACCAGTTGCCGCGG GGCTTTCCTTTGTGC TTGATCTAACCATGT GGTGGAACGATGGAA ACGGAACATGGTTCT GTCAAGCACCGCGGA AAGCATCGCTCTCTC CTGCA	1396	mir-33a	TTGTGCTTGATCTAACCATGT	234
mir-218_2	GACCAGTTGCCGCGG GGCTTTCCTTTGTGC TTGATCTAACCATGT GGTGGAACGATGGAA ACGGAACATGGTTCT GTCAAGCACCGCGGA AAGCATCGCTCTCTC CTGCA	1396	mir-24	TTGTGCTTGATCTAACCATGTG	1103
mir-148b	TTAGCATTTGAGGTG AAGTTCTGTTATACA CTCAGGCTGTGGCTC TGAAAGTCAGTGCAT CACAGAACTTTGTCT CGAAAGCTTTCTAGC AGC	1397	mir-30d	TCAGTGCATCACAGAACTTTGT	272
mir-216	GATGGCTATGAGTTG GTTTAATCTCAGCTG GCAACTGTGAGATGT CCCTATCATTCCTCA CAGTGGTCTCTGGGA TTATGCTAAACAGAG CAATTTCCT	1398	mir-30d_Ruvkun	TAATCTCAGCTGGCAACTGTG	274
hypothetical miRNA 137	GTTCAACATAAGCAA ACAGATTGTAAACTG GCTGATAATTTTTGT ACTGACAATGTCATT TACAGCTGTCAGCCT TTCGTCTGTCTTGTT TGCTTTATTCAAATA TGAAC	1399	miR-136	TAAACTGGCTGATAATTTTTG	1141
hypothetical miRNA 138	CCCTCCAATGTCTGA TTAATCAAGCCTGCA AACAGCTTATTTCTT TTTGCCTGCATGCAA GTATGAAAATGAGAT TCTGGGAGCCGAACA TTGTGCAGATTTGTT CATTC	1400	miR-154	TGCAAGTATGAAAATGAGATT	1142
mir-210	GGCAGTCCCTCCAGG CTCAGGACAGCCACT GCCCACCGCACACTG CGTTGCTCCGGACCC ACTGTGCGTGTGACA GCGGCTGATCTGTCC CTGGGCAGCGCGA	1401	let-7c	CTGTGCGTGTGACAGCGGCTG	277
mir-223	CTGCAGTGTCACGCT CCGTGTATTTGACAA GCTGAGTTGGACACT CTGTGTGGTAGAGTG TCAGTTTGTCAAATA	1402	let-7c_Ruvkun	TGTCAGTTTGTCAAATACCCC	279

	CCCCAAGTGTGGCTC ATGC				
hypothetical miRNA 153	TGTTGAATGCAAGCA GATGCTGATAATATC AGAAGTCACAGCATA ATTTTTTTGATCAAA GGGCTCAAGTGAGCC TGATGAAGCATGCAT CTTGCTCGTCTTTGA TAAA	1403	miR-149	TGCAAGCAGATGCTGATAATA	1145
hypothetical miRNA 154	CCTGCAGTGATGCTT CATGAGCAAATCACA TGATGTCAGAATGGT ATGGTTTCGATTTAA TCAAGAAAGAGATTA AAGTGGATGTGTGTT ATTTTCAACTTCGCC GCAGC	1404	mir-30c	TTAAAGTGGATGTGTGTTATT	1146
mir-135_1	GCCCCAGGCCTCACT GTTCTCTATGGCTTT TTATTCCTATGTGAT TCTATTGCTCGCTCA TATAGGGATTGGAGC CGTGGCGTACGG	1405	hypothetical miRNA-101	TATGGCTTTTTATTCCTATGTGA	1149
mir-135_1	GCCCCAGGCCTCACT GTTCTCTATGGCTTT TTATTCCTATGTGAT TCTATTGCTCGCTCA TATAGGGATTGGAGC CGTGGCGTACGG	1405	let-7e	TATGGCTTTTTATTCCTATGTGAT	283
non-coding RNA in rhabdomyosar coma/ mir-135_2	ACCAAGATAAATTCA CTCTAGTGCTTTATG GCTTTTTATTCCTAT GTGATCGTAATAAAG TCTCATGTAGGGATG GAAGCCATGAAATAC ATTGTGAAAATTCAT CAACT	1406	mir-181b	TATGGCTTTTTATTCCTATGTGA	1149
non-coding RNA in rhabdomyosar coma/ mir-135_2	ACCAAGATAAATTCA CTCTAGTGCTTTATG GCTTTTTATTCCTAT GTGATCGTAATAAAG TCTCATGTAGGGATG GAAGCCATGAAATAC ATTGTGAAAATTCAT CAACT	1406	miR-155/ hypothetical miRNA-071	TATGGCTTTTTATTCCTATGTGAT	283
hypothetical miRNA 170	GAATGTATGATCTTG CTCTAACACTTGGCC AGACCTGTGTCACCC ACCGCTAGTGCCTGA AGTCGACAGACAATT CTGCCAAGGTAACTG AGAATCATTAAGCAT CCTGC	1407	mir-30c_Ruvkun	TGATCTTGCTCTAACACTTGG	1157
glutamate receptor, ionotropic, AMPA 2 / hypothetical miRNA-171	CACCCTGTCTGACAA GTATGTTTTATCGTT TCAAGAAATGCGGTT AACCTCGCAGTACTA AAACTGAATGAACAA GGCCTGTTGGACAAA TTGAAAAACAAATGG	174	miR-99b	TGACAAGTATGTTTTATCGTT	1158

	TGGTA				
hypothetical miRNA 176	TGGAAGGAAAATAGGAGTTTGATATGACATATTGTGTGTCTCAGCAAGACTCATAAATAATTTTGACAAGTTTTTGTATGCATGGGAAAGTCCTTGATTCAGCCTCCCAT	179	miR-125a	TAGGAGTTTGATATGACATAT	1163
hypothetical miRNA 179	AATGCCAGCGAGTTTGAAAGGCACTTTGTCCAATTAGAAGTGTGGGGAAAATATCCATCCTGTCTGTGACAAAGATGAAGCACTTCTTTCAAAAG	1408	mir-125b	TGAAAGGCACTTTGTCCAATT	1166
hypothetical miRNA 181	TGTGCACCTCACCTGCTCTGGAAGTAGTTTGCTAGCTCTGATGCTTCATGGTTCAGACTCCTCAGGTGCACGATTAAATTTCCAGAGTTGGTGAACATGGCGCCACATG	1409	mir-221	TCACCTGCTCTGGAAGTAGTT	1167
mir-181c	TTGCCAAGGGTTTGGGGGAACATTCAACCTGTCGGTGAGTTTGGGCAGCTCAGACAAACCATCGACCGTTGAGTGGACCCCGAGGCCTGGAACTGCCA	1410	mir-133a	AACATTCAACCTGTCGGTGAGT	290
mir-100_1	CCTGTTGCCACAAACCCGTAGATCCGAACTTGTGCTGATTCTGCACACAAGCTTGTGTCTATAGGTATGTGTCTGTTAGG	1411	let-7b	AACCCGTAGATCCGAACTTGTG	275
mir-103_1	TACTGCCCTCGGCTTCTTTACAGTGCTGCCTTGTTGCATATGGATCAAGCAGCATTGTACAGGGCTATGAAGGCATTG	950	mir-29a	AGCAGCATTGTACAGGGCTATGA	225
mir-107	CTCTGTGCTTTCAGCTTCTTTACAGTGTTGCCTTGTGGCATGGAGTTCAAGCAGCATTGTACAGGGCTATCAAAGCACAGA	1412	mir-141	AGCAGCATTGTACAGGGCTATCA	229
mir-19a	CCTCTGTTAGTTTTGCATAGTTGCACTACAAGAAGAATGTAGTTGTGCAAATCTATGCAAAACTGATGGTGGCCTG	1413	mir-20	TGTGCAAATCTATGCAAAACTGA	268
mir-19b_1	TCTATGGTTAGTTTTGCAGGTTTGCATCCAGCTGTATAATATTCTGCTGTGCAAATCCATGCAAAACTGACTGTGGT	1414	mir-21	AGTTTTGCAGGTTTGCATCCAGC	1179

mir-19b_1	TCTATGGTTAGTTTTGCAGGTTTGCATCCAGCTGTATAATATTCTGCTGTGCAAATCCATGCAAAACTGACTGTGGT	1414	mir-223	TGTGCAAATCCATGCAAAACTGA	241
mir-92_1	CTTTCTACACAGGTTGGGATTTGTCGCAATGCTGTGTTTCTCTGTATGGTATTGCACTTGTCCCGGCCTGTTGAGTTTGG	1415	hypothetical miRNA-090	TATTGCACTTGTCCCGGCCTG	1182
mir-92_1	CTTTCTACACAGGTTGGGATTTGTCGCAATGCTGTGTTTCTCTGTATGGTATTGCACTTGTCCCGGCCTGTTGAGTTTGG	1415	miR-9	TATTGCACTTGTCCCGGCCTGT	216
mir-98	GTGAGGTAGTAAGTTGTATTGTTGTGGGGTAGGGATTTTAGGCCCCAGTAAGAAGATAACTATACAACTTACTACTTTCC	1416	mir-131	TGAGGTAGTAAGTTGTATTGTT	257
mir-104 (Mourelatos)	AAATGTCAGACAGCCCATCGACTGCTGTTGCCATGAGATTCAACAGTCAACATCAGTCTGATAAGCTATCCGACAAGG	1417	mir-221 (RFAM-mmu)	TCAACATCAGTCTGATAAGCTA	335
mir-27 (Mourelatos)	CCTGAGGAGCAGGGCTTAGCTGCTTGTGAGCAAGGTCCACAGCAAAGTCGTGTTCACAGTGGCTAAGTTCCGCCCCC	1418	mir-213	TTCACAGTGGCTAAGTTCC	1186
mir-27 (Mourelatos)	CCTGAGGAGCAGGGCTTAGCTGCTTGTGAGCAAGGTCCACAGCAAAGTCGTGTTCACAGTGGCTAAGTTCCGCCCCC	1418	mir-222 (RFAM-mmu)	TTCACAGTGGCTAAGTTCCGC	1187
mir-27 (Mourelatos)	CCTGAGGAGCAGGGCTTAGCTGCTTGTGAGCAAGGTCCACAGCAAAGTCGTGTTCACAGTGGCTAAGTTCCGCCCCC	1418	mir-203	TTCACAGTGGCTAAGTTCCGCC	1188
mir-31	CTCCTGTAACTCGGAACTGGAGAGGAGGCAAGATGCTGGCATAGCTGTTGAACTGAGAACCTGCTATGCCAACATATTGCCATCTTTCCTGTCTGACAGCAGC	1419	mir-178 (Kosik)	AGGCAAGATGCTGGCATAGCTG	1197
mir-31	CTCCTGTAACTCGGAACTGGAGAGGAGGCAAGATGCTGGCATAGCTGTTGAACTGAGAACCTGCTATGCCAACATATTGCCATCTTTCCT	1419	miR-203 (RFAM-M.mu.)	GGCAAGATGCTGGCATAGCTG	1198

	GTCTGACAGCAGC				
mir-32	TCTGCTTGCTCTGGT GGAGATATTGCACAT TACTAAGTTGCATGT TGTCACGGCCTCAAT GCAATTTAGTGTGTG TGATATTTTCACATG AGTGCATGCA	1420	let-7g	TATTGCACATTACTAAGTTGC	1199
mir_186	ATTGCTTACAACTTT CCAAAGAATTCTCCT TTTGGGCTTTCTCAT TTTATTTTAAGCCCT AAGGTGAATTTTTTG GGAAGTTTGAGCT	1421	miR-326 (Ruvkun)	CAAAGAATTCTCCTTTTGGGCTT	1208
mir_191	CCAATGGCTGGACAG CGGGCAACGGAATCC CAAAAGCAGCTGTTG TCTCCAGAGCATTCC AGCTGCACTTGGATT TCGTTCCCTGCTCTC CTGCCTGAGC	1422	mir-329 (mouse)	CAACGGAATCCCAAAAGCAGCT	1210
mir_191	CCAATGGCTGGACAG CGGGCAACGGAATCC CAAAAGCAGCTGTTG TCTCCAGAGCATTCC AGCTGCACTTGGATT TCGTTCCCTGCTCTC CTGCCTGAGC	1422	miR-27a (RFAM-Human)	CAACGGAATCCCAAAAGCAGCTGT	1211
mir_195	CCTGGCTCTAGCAGC ACAGAAATATTGGCA TGGGGAAGTGAGTCT GCCAATATTGGCTGT GCTGCTCCAGGCAGG GTGGTG	1423	mir-330 (rodent)	TAGCAGCACAGAAATATTGGC	1216
mir_193	GGGAGCTGAGAGCTG GGTCTTTGCGGGCAA GATGAGAGTGTCAGT TCAACTGGCCTACAA AGTCCCAGTCCTCGG TCCCC	1424	mir-337 (rodent)	AACTGGCCTACAAAGTCCCAG	1217
mir_188	TCCCTGCTCCCTCTC TCACATCCCTTGCAT GGTGGAGGGTGAGCT CTCTGAAAACCCCTC CCACATGCAGGGTTT GCAGGATGGTGAGC	1425	mir-345 (rodent)	CATCCCTTGCATGGTGGAGGGT	1219
mir_208	TTCCTTTGACGGGTG AGCTTTTGGCCCGGG TTATACCTGACACTC ACGTATAAGACGAGC AAAAAGCTTGTTGGT CAGAGGAG	1426	mir-346 (mouse)	ATAAGACGAGCAAAAAGCTTGT	1222
mir_139	GGACAGGCGCAGGTG TATTCTACAGTGCAC GTGTCTCCAGTGTGG CTCGGAGGCTGGAGA CGCGGCCCTGTTGGA GTAACAACTGAAGCC AGAGTCT	1427	mir-151* (Ruvkun)	TCTACAGTGCACGTGTCT	1223
mir-200b	GTGGCCATCTTACTG GGCAGCATTGGATAG	1428	mir-151 (rodent)	CTCTAATACTGCCTGGTAATGATG	1224

	TGTCTGATCTCTAAT ACTGCCTGGTAATGA TGACGGCGGAG				
mir-200b	GTGGCCATCTTACTG GGCAGCATTGGATAG TGTCTGATCTCTAAT ACTGCCTGGTAATGA TGACGGCGGAG	1428	mir-216	TAATACTGCCTGGTAATGATGA	1225
mir-200b	GTGGCCATCTTACTG GGCAGCATTGGATAG TGTCTGATCTCTAAT ACTGCCTGGTAATGA TGACGGCGGAG	1428	mir-219	TAATACTGCCTGGTAATGATGAC	1226
mir-200a	GGGCCTCTGTGGGCA TCTTACCGGACAGTG CTGGATTTCTTGGCT TGACTCTAACACTGT CTGGTAACGATGTTC AAAGGTGACCC	1429	mir-181a	TAACACTGTCTGGTAACGATG	1227
mir-200a	GGGCCTCTGTGGGCA TCTTACCGGACAGTG CTGGATTTCTTGGCT TGACTCTAACACTGT CTGGTAACGATGTTC AAAGGTGACCC	1429	mir-151L (rodent)	TAACACTGTCTGGTAACGATGT	1228
mir-227* (Kosik)/mir-226* (Kosik)	TGACTATGCCTCCTC GCATCCCCTAGGGCA TTGGTGTAAAGCTGG AGACCCACTGCCCCA GGTGCTGCTGGGGGT TGTAGTCT	1430	mir-191	ACTGCCCCAGGTGCTGCTGG	1231
mir-227* (Kosik)/mir-226* (Kosik)	TGACTATGCCTCCTC GCATCCCCTAGGGCA TTGGTGTAAAGCTGG AGACCCACTGCCCCA GGTGCTGCTGGGGGT TGTAGTCT	1430	hypothetical miRNA-058	CCACTGCCCCAGGTGCTGCTGG	1232
mir-227* (Kosik)/mir-226* (Kosik)	TGACTATGCCTCCTC GCATCCCCTAGGGCA TTGGTGTAAAGCTGG AGACCCACTGCCCCA GGTGCTGCTGGGGGT TGTAGTCT	1430	hypothetical miRNA-055	CGCATCCCCTAGGGCATTGGTGT	1233
mir-244* (Kosik)	GTCCTCCCCAACAAT ATCCTGGTGCTGAGT GGGTGCACAGTGACT CCAGCATCAGTGATT TTGTTGAAGAGGGCA GCTGCCA	1431	mir-218	TCCAGCATCAGTGATTTTGTTGA	1234
mir-224* (Kosik)	TGGTACTTGGAGAGA GGTGGTCCGTGGCGC GTTCGCTTCATTTAT GGCGCACATTACACG GTCGACCTCTTTGCG GTATCTA	1432	mir-253* (Kosik)	GCACATTACACGGTCGACCTCT	1235
mir-248* (Kosik)	GAAAATGGGCTCAAG GTGAGGGGTGCTATC TGTGATTGAGGGACA TGGTCAATGGAATTG TCTCACACAGAAATC GCACCCGTCACCTTG	1433	mir-222	TCTCACACAGAAATCGCACCCGTC	1236

	GCCT				
mir-138_3	ATGGTGTTGTGGGACAGCTGGTGTTGTGAATCAGGCCGTTGCCAATCAGAGAACGGCTACTTCACAACACCAGGGCCACAC	1434	mir-19b* (Michael et al)	AGCTGGTGTTGTGAATC	256
mir-138_3	ATGGTGTTGTGGGACAGCTGGTGTTGTGAATCAGGCCGTTGCCAATCAGAGAACGGCTACTTCACAACACCAGGGCCACAC	1434	mir-27b	AGCTGGTGTTGTGAATCAGGCCG	1127
mir-181b_2	ATGGCTGCACTCAACATTCATTGCTGTCGGTGGGTTTGAATGTCAACCAACTCACTGATCAATGAATGCAAACTGCGGGCCAAA	1435	mir-15_Ruvkun	AACATTCATTGCTGTCGGTGGGTT	260
mir-103_2	GTGCTTTCAGCTTCTTTACAGTGCTGCCTTGTAGCATTCAGGTCAAGCAGCATTGTACAGGGCTATGAAAGAACCA	1436	miR-101 (RFAM-Human)	AGCAGCATTGTACAGGGCTATGA	225
mir-134 (Sanger)	CAGGGTGTGTGACTGGTTGACCAGAGGGGCGTGCACTCTGTTCACCCTGTGGGCCACCTAGTCACCAACCCTC	1437	mir-129	TGTGACTGGTTGACCAGAGGG	1240
mir-146 (Sanger)	TGTGTATCCCCAGCTCTGAGAACTGAATTCCATGGGTTATATCAATGTCAGACCTGTGAAATTCAGTTCTTCAGCTGGGATAGCTCTGTCATC	1438	mir-129as/mir-258* (Kosik)	TGAGAACTGAATTCCATGGGTT	1241
mir-30e (RFAM/mmu)	TGGGCAGTCTTTGCTACTGTAAACATCCTTGACTGGAAGCTGTAAGGTGTTGAGAGGAGCTTTCAGTCGGATGTTTACAGCGGCAGGCTGCCAC	1439	miR-129b (RFAM-Human)	TGTAAACATCCTTGACTGGA	1243
mir-30e (RFAM/mmu)	TGGGCAGTCTTTGCTACTGTAAACATCCTTGACTGGAAGCTGTAAGGTGTTGAGAGGAGCTTTCAGTCGGATGTTTACAGCGGCAGGCTGCCAC	1439	miR-135 (RFAM-Human)	TGTAAACATCCTTGACTGGAAG	1244
mir-299 (RFAM/mmu)	CGGTACTTGAAGAAATGGTTTACCGTCCCACATACATTTTGAGTATGTATGTGGGACGGTAAACCGCTTCTTGGTATCC	1440	mir-133b	TGGTTTACCGTCCCACATACAT	1246
mir-340 (Ruvkun)	TGTACTTGGTGTGATTATAAAGCAATGAGACTGATTGTCATATGTCGTTTGTGGGATCCG	1441	miR-188	TCCGTCTCAGTTACTTTATAGCC	1257

	TCTCAGTTACTTTATAGCCATACCTGGTATC				
mir-331 (Ruvkun)	TGTTTGGGTTTGTTCTAGGTATGGTCCCAGGGATCCCAGATCAAACCAGGCCCCTGGGCCTATCCTAGAACCAACCTAA	1442	miR-208	GCCCCTGGGCCTATCCTAGAA	1258
mir-187	CCTCAGGCTACAACACAGGACCCGGGCGCTGCTCTGACCCCTCGTGTCTTGTGTTGCAGCCGGAGGGACGCAGGTC	1443	miR-199-s	TCGTGTCTTGTGTTGCAGCCG	1270
mir-187	CCTCAGGCTACAACACAGGACCCGGGCGCTGCTCTGACCCCTCGTGTCTTGTGTTGCAGCCGGAGGGACGCAGGTC	1443	let-7b_Ruvkun	TCGTGTCTTGTGTTGCAGCCGG	276
miR-201	TACCTTACTCAGTAAGGCATTGTTCTTCTATATTAATAAATGAACAGTGCCTTTCTGTGTAGGGTA	1444	miR-187 (RFAM-Human)	TACTCAGTAAGGCATTGTTCT	1479
miR-207	AAGGCAGGGGTGAGGGGCTGCGGGAGGAGCCGGGCGGAGGCTGCGGCTTGCGCTTCTCCTGGCTCTCCTCCCTCTCTTT	1445	miR-201	GCTTCTCCTGGCTCTCCTCCCTC	1480
miR-291	CCTATGTAGCGGCCATCAAAGTGGAGGCCCTCTCTTGAGCCTGAATGAGAAAGTGCTTCCACTTTGTGTGCCACTGCATGGG	1446	miR-291	AAAGTGCTTCCACTTTGTGTGCC	1481
miR-291	CCTATGTAGCGGCCATCAAAGTGGAGGCCCTCTCTTGAGCCTGAATGAGAAAGTGCTTCCACTTTGTGTGCCACTGCATGGG	1446	miR-207	CATCAAAGTGGAGGCCCTCTCT	1482
miR-292	CAGCCTGTGATACTCAAACTGGGGGCTCTTTTGGATTTTCATCGGAAGAAAAGTGCCGCCAGGTTTTGAGTGTCACCGGTTG	1447	miR-291	AAGTGCCGCCAGGTTTTGAGTGT	1483
miR-292	CAGCCTGTGATACTCAAACTGGGGGCTCTTTTGGATTTTCATCGGAAGAAAAGTGCCGCCAGGTTTTGAGTGTCACCGGTTG	1447	miR-292	ACTCAAACTGGGGGCTCTTTTG	1484
miR-293	TTCAATCTGTGGTACTCAAACTGTGTGACATTTTGTTCTTTGTAAGAAGTGCCGCAGAGTTTGTAGTGTTGCCGA	1448	miR-292	AGTGCCGCAGAGTTTGTAGTGT	1485

	TTGAG				
miR-294	TTCCATATAGCCATACTCAAAATGGAGGCCCTATCTAAGCTTTTAAGTGGAAAGTGCTTCCCTTTTGTGTGTTGCCATGTGGAG	1449	miR-293	AAAGTGCTTCCCTTTTGTGTGT	1486
miR-295	GGTGAGACTCAAATGTGGGGCACACTTCTGGACTGTACATAGAAAGTGCTACTACTTTTGAGTCTCTCC	1450	miR-294	AAAGTGCTACTACTTTTGAGTCT	1487
miR-300	GCTACTTGAAGAGAGGTTATCCTTTGTGTGTTTGCTTTACGCGAAATGAATATGCAAGGGCAAGCTCTCTTCGAGGAGC	1451	miR-295	TATGCAAGGGCAAGCTCTCTTC	1488
miR-322	CCTCGTTGACTCCGAAGGGCTGCAGCAGCAATTCATGTTTTGGAGTATTGCCAAGGTTCAAAACATGAAGCGCTGCAACACCCCTTCGTGGGGAA	1452	miR-300	AAACATGAAGCGCTGCAACA	1489
miR-344	CTGCAGCCAGGGTTTTTACCAGTCAGGCTCCTGGCTAGATTCCAGGTACCAGCTGGTACCTGATCTAGCCAAAGCCTGACTGTAAGCCCTGAACA	1453	miR-322	TGATCTAGCCAAAGCCTGACTGT	1490
miR-350	AGATGCCTTGCTCCTACAAGAGTAAAGTGCATGCGCTTTGGGACAGTGAGGAAAATAATGTTCACAAAGCCCATACACTTTCACCCTTTAGGAGAGTTG	1454	miR-344	TTCACAAAGCCCATACACTTTCAC	1491
miR-290	CTCATCTTGCGGTACTCAAACTATGGGGGCACTTTTTTTTTTCTTTAAAAAGTGCCGCCTAGTTTTAAGCCCCGCCGGTTGAG	1455	miR-350	CTCAAACTATGGGGGCACTTTTT	1492
miR-351	CATGGCACCTCCGTTTCCCTGAGGAGCCCTTTGAGCCTGGAGTGAAAAAAAAAAACAGGTCAAGAGGCGCCTGGGAACTGGAGAAGAGTGTTAAACTTC	1456	miR-290	TCCCTGAGGAGCCCTTTGAGCCTG	1493
miR-341	AAAATGATGATGTCAGTTGGCCGGTCGGCCGATCGCTCGGTCTGTCAGTCAGTCGGTCGGTCGATCGGTCGGTCGGTCAGTCGGCTTCCTGTCTTC	1457	miR-351	TCGATCGGTCGGTCGGTCAGT	1494
miR-298	CCAGGCCTTTGGCAGAGGAGGGCTGTTCTT	1458	miR-341	GGCAGAGGAGGGCTGTTCTTCC	1495

	CCCTTGAGTTTTATG ACTGGGAGGAACTAG CCTTCTCTCAGCTTA GGAGTGG				

A list of rat pri-miRNAs and the mature miRNAs predicted to derive from them is shown in Table 62. "Pri-miRNA name" indicates the gene name for each of the pri-miRNAs, and "pri-miRNA sequence" indicates the sequence of the predicted primary miRNA transcript. Also given in table 62 are the name and sequence of the mature miRNA derived from the pri-miRNA. Mature miRNA sequences from pri-miRNA precursors have been proposed by several groups; consequently, for a given pri-miRNA sequence, several miRNAs may be disclosed and given unique names, and thus a given pri-miRNA sequence may occur repeatedly in the table. The sequences are written in the 5' to 3' direction and are represented in the DNA form. It is understood that a person having ordinary skill in the art would be able to convert the sequence of the targets to their RNA form by simply replacing the thymidine (T) with uracil (U) in the sequence.

Table 62

Rat pri-miRNA sequences and the corresponding mature miRNAs

Pri-miRNA name	Pri-miRNA sequence	SEQ ID NO	Mature miRNA name	Mature miRNA sequence	SEQ ID NO
mir-20	CAGCTTCTGTAG CACTAAAGTGCT TATAGTGCAGGT AGTGTGTCGTCA TCTACTGCATTA CGAGCACTTACA GTACTGCCAGCT G	1496	miR-20* (mouse)	ACTGCATTACGAGCACTTACA	1608
mir-20	CAGCTTCTGTAG CACTAAAGTGCT TATAGTGCAGGT AGTGTGTCGTCA TCTACTGCATTA CGAGCACTTACA GTACTGCCAGCT G	1496	miR-20 (RFAM-Human)	TAAAGTGCTTATAGTGCAGGTA	1126
mir-20	CAGCTTCTGTAG CACTAAAGTGCT TATAGTGCAGGT AGTGTGTCGTCA TCTACTGCATTA CGAGCACTTACA GTACTGCCAGCT G	1496	mir-20	TAAAGTGCTTATAGTGCAGGTAG	254
mir-151* (Ruvkun)	AGCGCTTTCCTG CCCTCGAGGAGC TCACAGTCTAGT ATGTCTCCTCCC	1497	mir-151L (rodent)	ACTAGACTGAGGCTCCTTGAGG	1476

	TACTAGACTGAG GCTCCTTGAGGA CAGGGATCGTCA TACTCACCTCCC G				
mir-151* (Ruvkun)	AGCGCTTTCCTG CCCTCGAGGAGC TCACAGTCTAGT ATGTCTCCTCCC TACTAGACTGAG GCTCCTTGAGGA CAGGGATCGTCA TACTCACCTCCC G	1497	mir-151 (rodent)	CTAGACTGAGGCTCCTTGAGG	1477
mir-151* (Ruvkun)	AGCGCTTTCCTG CCCTCGAGGAGC TCACAGTCTAGT ATGTCTCCTCCC TACTAGACTGAG GCTCCTTGAGGA CAGGGATCGTCA TACTCACCTCCC G	1497	mir-151* (Ruvkun)	TCGAGGAGCTCACAGTCTAGTA	1256
mir-346 (Ruvkun)	TCTGTGTTGGGC ATCTGTCTGCCT GAGTGCCTGCCT CTCTGTTGCTCT GAAGGAGGCAGG GGCTGGGCCTGC AGCTGCCTGGGC AGAGCTGCTCCT TC	1498	miR-346 (rat)	TGTCTGCCTGAGTGCCTGCCTCT	1609
mir-143	CCTGAGCGCGGA GCGCCTGTCTCC CAGCCTGAGGTG CAGTGCTGCATC TCTGGTCAGTTG GGAGTCTGAGAT GAAGCACTGTAG CTCAGGAAGGGA GAAGATGTTCTG CAGCC	1499	miR-143 (Michael et al)	TGAGATGAAGCACTGTAGCTC	1088
mir-143	CCTGAGCGCGGA GCGCCTGTCTCC CAGCCTGAGGTG CAGTGCTGCATC TCTGGTCAGTTG GGAGTCTGAGAT GAAGCACTGTAG CTCAGGAAGGGA GAAGATGTTCTG CAGCC	1499	mir-143	TGAGATGAAGCACTGTAGCTCA	220
mir-203	GGTCCAGTGGTT CTTAACAGTTCA ACAGTTCTGTAG CGCAATTGTGAA ATGTTTAGGACC ACTAGACCCGGC GCGCACGGC	1500	mir-203	GTGAAATGTTTAGGACCACTAG	197
mir-203	GGTCCAGTGGTT CTTAACAGTTCA	1500	miR-203 (RFAM-M.	TGAAATGTTTAGGACCACTAG	1068

	ACAGTTCTGTAG CGCAATTGTGAA ATGTTTAGGACC ACTAGACCCGGC GCGCACGGC		mu.)		
mir-203	GGTCCAGTGGTT CTTAACAGTTCA ACAGTTCTGTAG CGCAATTGTGAA ATGTTTAGGACC ACTAGACCCGGC GCGCACGGC	1500	miR-203 (Tuschl)	TGAAATGTTTAGGACCACTAGA	1069
mir-26b	GCCCGGGACCCA GTTCAAGTAATT CAGGATAGGTTG TGGTGCTGGCCA GCCTGTTCTCCA TTACTTGGCTCG GGGGCCGGTGC	1501	miR-26b (RFAM-Human)	TTCAAGTAATTCAGGATAGGT	1147
mir-26b	GCCCGGGACCCA GTTCAAGTAATT CAGGATAGGTTG TGGTGCTGGCCA GCCTGTTCTCCA TTACTTGGCTCG GGGGCCGGTGC	1501	mir-26b	TTCAAGTAATTCAGGATAGGTT	281
mir-128a	CCTGAGCTGTTG GATTCGGGGCCG TAGCACTGTCTG AGAGGTTTACAT TTCTCACAGTGA ACCGGTCTCTTT TTCAGCTGCTTC	1276	mir-128 (Kosik)	TCACAGTGAACCGGTCTCTTT	1073
mir-128a	CCTGAGCTGTTG GATTCGGGGCCG TAGCACTGTCTG AGAGGTTTACAT TTCTCACAGTGA ACCGGTCTCTTT TTCAGCTGCTTC	1276	mir-128a	TCACAGTGAACCGGTCTCTTTT	200
mir-29b_1	CTCTTCTTCTGG AAGCTGGTTTCA CATGGTGGCTTA GATTTTTCCATC TTTGTATCTAGC ACCATTTGAAAT CAGTGTTTTAGG AGTAAGAA	1277	miR-29b (RFAM-Human)	TAGCACCATTTGAAATCAGT	1172
mir-29b_1	CTCTTCTTCTGG AAGCTGGTTTCA CATGGTGGCTTA GATTTTTCCATC TTTGTATCTAGC ACCATTTGAAAT CAGTGTTTTAGG AGTAAGAA	1277	miR-29b (RFAM-M. mu.)	TAGCACCATTTGAAATCAGTGT	1173
mir-29b_1	CTCTTCTTCTGG AAGCTGGTTTCA CATGGTGGCTTA GATTTTTCCATC TTTGTATCTAGC	1502	mir-29b	TAGCACCATTTGAAATCAGTGTT	195

	ACCATTTGAAAT CAGTGTTTTAGG AGTAAGAA				
mir-29c	GGCTGACCGATT TCTCCTGGTGTT CAGAGTCTGTTT TTGTCTAGCACC ATTTGAAATCGG TTA	1278	mir-29c	CTAGCACCATTTGAAATCGGTT	232
mir-29c	GGCTGACCGATT TCTCCTGGTGTT CAGAGTCTGTTT TTGTCTAGCACC ATTTGAAATCGG TTA	1278	miR-29c (Tuschl)	TAGCACCATTTGAAATCGGTTA	1100
mir-123/mir-126	CGGTGACAGCAC ATTATTACTTTT GGTACGCGCTGT GACACTTCAAAC TCGTACCGTGAG TAATAATGCGTG GTCAACAGC	1503	mir-123/mir-126as	CATTATTACTTTTGGTACGCG	205
mir-123/mir-126	CGGTGACAGCAC ATTATTACTTTT GGTACGCGCTGT GACACTTCAAAC TCGTACCGTGAG TAATAATGCGTG GTCAACAGC	1503	mir-126	TCGTACCGTGAGTAATAATGC	1076
mir-130a	GGGTGAGGAGGC GGGCCGGCATGC CTTTGCTGCTGG CCGGAGCTCTTT TCACATTGTGCT ACTGTCTACACG TGTACCGAGCAG TGCAATGTTAAA AGGGCATCGGCC TTGTAGTACTAC CCAGTGCCGGCA GCCTCCTCAG	1504	mir-130a	CAGTGCAATGTTAAAAGGGC	233
mir-130a	GGGTGAGGAGGC GGGCCGGCATGC CTTTGCTGCTGG CCGGAGCTCTTT TCACATTGTGCT ACTGTCTACACG TGTACCGAGCAG TGCAATGTTAAA AGGGCATCGGCC TTGTAGTACTAC CCAGTGCCGGCA GCCTCCTCAG	1504	mir-130 (Kosik)	CAGTGCAATGTTAAAAGGGCAT	1101
mir-124a_3	TGAGGGCCCCTC TGCGTGTTCACA GCGGACCTTGAT TTAATGTCTATA CAATTAAGGCAC GCGGTGAATGCC AAGAGAGGCGCC TC	1282	mir-124a (Kosik)	TAAGGCACGCGGTGAATGCCA	1104

mir-124a_3	TGAGGGCCCCTCTGCGTGTTCACAGCGGACCTTGATTTAATGTCTATACAATTAAGGCACGCGGTGAATGCCAAGAGAGGCGCCTC	1282	mir-124a	TTAAGGCACGCGGTGAATGCCA	235
mir-124a_3	TGAGGGCCCCTCTGCGTGTTCACAGCGGACCTTGATTTAATGTCTATACAATTAAGGCACGCGGTGAATGCCAAGAGAGGCGCCTC	1282	mir-124a_Ruvkun	TTAAGGCACGCGGTGAATGCCAA	1105
mir-15b	CCTTAAAGTACTGTAGCAGCACATCATGGTTTACATACTACAGTCAAGATGCGAATCATTATTTGCTGCTCTAGAAATTTAAGGA	1286	miR-15b (Michael et al)	TAGCAGCACATCATGGTTTAC	1115
mir-15b	CCTTAAAGTACTGTAGCAGCACATCATGGTTTACATACTACAGTCAAGATGCGAATCATTATTTGCTGCTCTAGAAATTTAAGGA	1286	mir-15b	TAGCAGCACATCATGGTTTACA	246
mir-16_3	TTGTTCCGCTCTAGCAGCACGTAAATATTGGCGTAGTGAAATAAATATTAAACACCAATATTATTGTGCTGCTTTAGTGTGAC	1505	mir-16	TAGCAGCACGTAAATATTGGCG	196
mir-16_3	TTGTTCCGCTCTAGCAGCACGTAAATATTGGCGTAGTGAAATAAATATTAAACACCAATATTATTGTGCTGCTTTAGTGTGAC	1505	mir-16_Ruvkun	TAGCAGCACGTAAATATTGGCGT	1176
mir-137	GACTCTCTTCGGTGACGGGTATTCTTGGGTGGATAATACGGATTACGTTGTTATTGCTTAAGAATACGCGTAGTCGAGGAGAGT	1288	mir-137	TATTGCTTAAGAATACGCGTAG	270
mir-101_1	CAGGCTGCCCTGGCTCAGTTATCACAGTGCTGATGCTGTCCATTCTAAAGGTACAGTACTGTGATAACTGAAGGATGGCAGCC	1289	mir-101	TACAGTACTGTGATAACTGA	265

mir-101_1	CAGGCTGCCCTG GCTCAGTTATCA CAGTGCTGATGC TGTCCATTCTAA AGGTACAGTACT GTGATAACTGAA GGATGGCAGCC	1289	miR-101 (RFAM-Human)	TACAGTACTGTGATAACTGAAG	1170
mir-29a	AGGATGACTGAT TTCTTTTGGTGT TCAGAGTCAATA GAATTTTCTAGC ACCATCTGAAAT CGGTTATAATG	1291	mir-29a	CTAGCACCATCTGAAATCGGTT	247
mir-29a	AGGATGACTGAT TTCTTTTGGTGT TCAGAGTCAATA GAATTTTCTAGC ACCATCTGAAAT CGGTTATAATG	1291	mir-29a_Ruvkun	TAGCACCATCTGAAATCGGTTA	1116
mir-29b_2	AAGCTGGTTTCA TATGGTGGTTTA GATTTAAATAGT GATTGTCTAGCA CCATTTGAAATC AGTGTT	1292	miR-29b (RFAM-Human)	TAGCACCATTTGAAATCAGT	1172
mir-29b_2	AAGCTGGTTTCA TATGGTGGTTTA GATTTAAATAGT GATTGTCTAGCA CCATTTGAAATC AGTGTT	1292	miR-29b (RFAM-M. mu.)	TAGCACCATTTGAAATCAGTGT	1173
mir-29b_2	AAGCTGGTTTCA TATGGTGGTTTA GATTTAAATAGT GATTGTCTAGCA CCATTTGAAATC AGTGTT	1292	mir-29b	TAGCACCATTTGAAATCAGTGTT	195
mir-131_3/mir-9	AATGGGAGGCCC GTTTCTCTCTTT GGTTATCTAGCT GTATGAGTGCCA CAGAGCCGTCAT AAAGCTAGATAA CCGAAAGTAGAA ATGACTCT	1506	mir-131	TAAAGCTAGATAACCGAAAGT	211
mir-131_3/mir-9	AATGGGAGGCCC GTTTCTCTCTTT GGTTATCTAGCT GTATGAGTGCCA CAGAGCCGTCAT AAAGCTAGATAA CCGAAAGTAGAA ATGACTCT	1506	mir-131_Ruvkun	TAAAGCTAGATAACCGAAAGTA	1080
mir-131_3/mir-9	AATGGGAGGCCC GTTTCTCTCTTT GGTTATCTAGCT GTATGAGTGCCA CAGAGCCGTCAT AAAGCTAGATAA CCGAAAGTAGAA ATGACTCT	1506	miR-9	TCTTTGGTTATCTAGCTGTATGA	1081

mir-23a	TCGGCCGGCTGG GGTTCCTGGGGA TGGGATTTGATG CCAGTCACAAAT CACATTGCCAGG GATTTCCAACTG ACCC	1507	mir-23a	ATCACATTGCCAGGGATTTCC	289
mir-140	TCTGTGTCCTGC CAGTGGTTTTAC CCTATGGTAGGT TACATCATGCTG TTCTACCACAGG GTAGAACCACGG ACAGGATACTG	1508	mir-140	AGTGGTTTTACCCTATGGTAG	192
mir-140	TCTGTGTCCTGC CAGTGGTTTTAC CCTATGGTAGGT TACATCATGCTG TTCTACCACAGG GTAGAACCACGG ACAGGATACTG	1508	miR-140-as	TACCACAGGGTAGAACCACGGA	1065
mir-140	TCTGTGTCCTGC CAGTGGTTTTAC CCTATGGTAGGT TACATCATGCTG TTCTACCACAGG GTAGAACCACGG ACAGGATACTG	1508	mir-239* (Kosik)	TACCACAGGGTAGAACCACGGACA	1066
mir-125b_1	GCTCCCCTCAGT CCCTGAGACCCT AACTTGTGATGT TTACCGTTTAAA TCCACGGGTTAG GCTCTTGGGAGC TGCGAGTCG	1509	mir-125b	TCCCTGAGACCCTAACTTGTGA	258
mir-26a_1	GAAGGCCGTGGC CTTGTTCAAGTA ATCCAGGATAGG CTGTGCAGGTCC CAAGGGGCCTAT TCTTGGTTACTT GCACGGGGACGC GGGCCTGGAC	1510	miR-26a (Michael et al)	TTCAAGTAATCCAGGATAGGC	1203
mir-26a_1	GAAGGCCGTGGC CTTGTTCAAGTA ATCCAGGATAGG CTGTGCAGGTCC CAAGGGGCCTAT TCTTGGTTACTT GCACGGGGACGC GGGCCTGGAC	1510	mir-26a	TTCAAGTAATCCAGGATAGGCT	226
let-7i	CACACCATGGCC CTGGCTGAGGTA GTAGTTTGTGCT GTTGGTCGGGTT GTGACATTGCCC GCTGTGGAGATA ACTGCGCAAGCT ACTGCCTTGCTA GTGCTGGTGAT	1302	let-7i	TGAGGTAGTAGTTTGTGCT	209

let-7i	CACACCATGGCC CTGGCTGAGGTA GTAGTTTGTGCT GTTGGTCGGGTT GTGACATTGCCC GCTGTGGAGATA ACTGCGCAAGCT ACTGCCTTGCTA GTGCTGGTGAT	1302	let-7i_Ruvkun	TGAGGTAGTAGTTTGTGCTGTT	1078
mir-21	GCTGTACCACCT TGTCGGGTAGCT TATCAGACTGAT GTTGACTGTTGA ATCTCATGGCAA CAGCAGTCGATG GGCTGTCTGACA TTTTGGTATC	1511	mir-21	TAGCTTATCAGACTGATGTTGA	236
mir-22	GGCTGAGCCGCA GTAGTTCTTCAG TGGCAAGCTTTA TGTCCTGACCCA GCTAAAGCTGCC AGTTGAAGAACT GTTGCCCTCTGC C	1512	mir-22	AAGCTGCCAGTTGAAGAACTGT	215
mir-142	AGACAGTGCAGT CACCCATAAAGT AGAAAGCACTAC TAACAGCACTGG AGGGTGTAGTGT TTCCTACTTTAT GGATGAGTGTAC TGTG	1513	mir-142	CATAAAGTAGAAAGCACTAC	217
mir-142	AGACAGTGCAGT CACCCATAAAGT AGAAAGCACTAC TAACAGCACTGG AGGGTGTAGTGT TTCCTACTTTAT GGATGAGTGTAC TGTG	1513	miR-142-as	TGTAGTGTTTCCTACTTTATGG	1086
mir-142	AGACAGTGCAGT CACCCATAAAGT AGAAAGCACTAC TAACAGCACTGG AGGGTGTAGTGT TTCCTACTTTAT GGATGAGTGTAC TGTG	1513	miR-142as (Michael et al)	TGTAGTGTTTCCTACTTTATGGA	1087
mir-144	CCTTGGCTGGGA TATCATCATATA CTGTAAGTTTGT GATGAGACACTA CAGTATAGATGA TGTACTAGTCTG GGTA	1514	mir-144	TACAGTATAGATGATGTACTAG	237
mir-152	CCGGGCCCAGGT TCTGTGATACAC TCCGACTCGGGC TCTGGAGCAGTC AGTGCATGACAG	1515	mir-152	TCAGTGCATGACAGAACTTGG	282

	AACTTGGGCCCG GT				
mir-153_2	ACTTAGCGGTGG CCAGTGTCATTT TTGTGATGTTGC AGCTAGTAATAT GAGCCCAGTTGC ATAGTCACAAAA GTGATCATTGGA AACTGTG	1516	mir-153	TTGCATAGTCACAAAAGTGA	201
let-7a_1	TCTTCACTGTGG GATGAGGTAGTA GGTTGTATAGTT TTAGGGTCACAC CCACCACTGGGA GATAACTATACA ATCTACTGTCTT TCCTAAGGTGAT GGA	1517	let-7a	TGAGGTAGTAGGTTGTATAGTT	222
let-7d	TGGGCTCCTAGG AAGAGGTAGTAG GTTGCATAGTTT TAGGGCAGAGAT TTTGCCCACAAG GAGTTAACTATA CGACCTGCTGCC TTTCTTAGGGCC TTAT	1518	let-7d	AGAGGTAGTAGGTTGCATAGT	245
let-7d	TGGGCTCCTAGG AAGAGGTAGTAG GTTGCATAGTTT TAGGGCAGAGAT TTTGCCCACAAG GAGTTAACTATA CGACCTGCTGCC TTTCTTAGGGCC TTAT	1518	let-7d_Ruvkun	AGAGGTAGTAGGTTGCATAGTT	1113
let-7d	TGGGCTCCTAGG AAGAGGTAGTAG GTTGCATAGTTT TAGGGCAGAGAT TTTGCCCACAAG GAGTTAACTATA CGACCTGCTGCC TTTCTTAGGGCC TTAT	1518	let-7d* (RFAM-M. mu.)	CTATACGACCTGCTGCCTTTCT	1114
let-7f_1	TTGCTCTATCAG AGTGAGGTAGTA GATTGTATAGTT GTGGGGTAGTGA TTTTACCCTGTT TAGGAGATAACT ATACAATCTATT GCCTTCCCTGAG GAGTAGAC	1519	let-7f (Michael et al)	TGAGGTAGTAGATTGTATAGT	1098
let-7f_1	TTGCTCTATCAG AGTGAGGTAGTA GATTGTATAGTT GTGGGGTAGTGA TTTTACCCTGTT TAGGAGATAACT	1519	let-7f	TGAGGTAGTAGATTGTATAGTT	231

	ATACAATCTATT GCCTTCCCTGAG GAGTAGAC				
miR-24-1	GACCCGCCCTCC GGTGCCTACTGA GCTGATATCAGT TCTCATTTCACA CACTGGCTCAGT TCAGCAGGAACA GGAGTCGAG	1313	miR-189 (RFAM-Human)	GTGCCTACTGAGCTGATATCAGT	1271
miR-24-1	GACCCGCCCTCC GGTGCCTACTGA GCTGATATCAGT TCTCATTTCACA CACTGGCTCAGT TCAGCAGGAACA GGAGTCGAG	1313	mir-24	TGGCTCAGTTCAGCAGGAACAG	264
mir-124a_1	AGGCCTCTCTCT CCGTGTTCACAG CGGACCTTGATT TAAATGTCCATA CAATTAAGGCAC GCGGTGAATGCC AAGAATGGGGC	1318	mir-124a (Kosik)	TAAGGCACGCGGTGAATGCCA	1104
mir-124a_1	AGGCCTCTCTCT CCGTGTTCACAG CGGACCTTGATT TAAATGTCCATA CAATTAAGGCAC GCGGTGAATGCC AAGAATGGGGC	1318	mir-124a	TTAAGGCACGCGGTGAATGCCA	235
mir-124a_1	AGGCCTCTCTCT CCGTGTTCACAG CGGACCTTGATT TAAATGTCCATA CAATTAAGGCAC GCGGTGAATGCC AAGAATGGGGC	1318	mir-124a_Ruvkun	TTAAGGCACGCGGTGAATGCCAA	1105
mir-18	GCTTTTTGTTCT AAGGTGCATCTA GTGCAGATAGTG AAGTAGACTAGC ATCTACTGCCCT AAGTGCTCCTTC TGGCATAAG	1319	mir-18	TAAGGTGCATCTAGTGCAGATA	262
mir-18	GCTTTTTGTTCT AAGGTGCATCTA GTGCAGATAGTG AAGTAGACTAGC ATCTACTGCCCT AAGTGCTCCTTC TGGCATAAG	1319	mir-18_Ruvkun	TAAGGTGCATCTAGTGCAGATAG	1177
mir-30b	TAAGCCGAGTTT CAGTTCATGTAA ACATCCTACACT CAGCTGTCATAC ATGAGTTGGCTG GGATGTGGATGT TTACGTCAGCTG TCTTGGAGTATC C	1520	mir-30b	TGTAAACATCCTACACTCAGC	266

mir-30b	TAAGCCGAGTTT CAGTTCATGTAA ACATCCTACACT CAGCTGTCATAC ATGAGTTGGCTG GGATGTGGATGT TTACGTCAGCTG TCTTGGAGTATC C	1520	mir-30b_Ruvkun	TGTAAACATCCTACACTCAGCT	1137
mir-30d	TGCTGTCAGAAA GTCTGTGTCTGT AAACATCCCCGA CTGGAAGCTGTA AGCCACAGCCAA GCTTTCAGTCAG ATGTTTGCTGCT ACTGGCTCTTCG CATGCAT	1521	mir-30d	TGTAAACATCCCCGACTGGAAG	240
mir-30d	TGCTGTCAGAAA GTCTGTGTCTGT AAACATCCCCGA CTGGAAGCTGTA AGCCACAGCCAA GCTTTCAGTCAG ATGTTTGCTGCT ACTGGCTCTTCG CATGCAT	1521	mir-30d_Ruvkun	TGTAAACATCCCCGACTGGAAGCT	1108
let-7b	GACACCGCGGGG TGAGGTAGTAGG TTGTGTGGTTTC AGGGCAGTGATG TCGCCCCTCCGA AGATAACTATAC AACCTACTGCCT TCCCTGAGGCGC CCAG	1522	let-7b	TGAGGTAGTAGGTTGTGTGGTT	212
let-7b	GACACCGCGGGG TGAGGTAGTAGG TTGTGTGGTTTC AGGGCAGTGATG TCGCCCCTCCGA AGATAACTATAC AACCTACTGCCT TCCCTGAGGCGC CCAG	1522	let-7b_Ruvkun	TGAGGTAGTAGGTTGTGTGGTTT	1082
let-7e	GCCGCGCCCCCC GGGCTGAGGTAG GAGGTTGTATAG TTGAGGAAGACA CCCGAGGAGATC ACTATACGGCCT CCTAGCTTTCCC CAGGCTGCGCCC	1328	let-7e	TGAGGTAGGAGGTTGTATAGT	249
mir-133a_1	GCAATGCTTTGC TAAAGCTGGTAA AATGGAACCAAA TCGCCTCTTCAA TGGATTTGGTCC CCTTCAACCAGC TGTAGCTATGCA TTGAT	1330	mir-133a	TTGGTCCCCTTCAACCAGCTGT	255

mir-145	TTGTCCTCACGG TCCAGTTTTCCC AGGAATCCCTTG GATGCTAAGATG GGGATTCCTGGA AATACTGTTCTT GAGGTCATG	1332	miR-145 (Michael et al)	GTCCAGTTTTCCCAGGAATCC	1122
mir-145	TTGTCCTCACGG TCCAGTTTTCCC AGGAATCCCTTG GATGCTAAGATG GGGATTCCTGGA AATACTGTTCTT GAGGTCATG	1332	mir-145	GTCCAGTTTTCCCAGGAATCCCTT	252
mir-122a	TCCTTAGCAGAG CTCTGGAGTGTG ACAATGGTGTTT GTGTCCAAAACA TCAAACGCCATC ATCACACTAAAC AGCTACTG	1523	miR-122a,b (Tuschl)	TGGAGTGTGACAATGGTGTTTG	1084
mir-122a	TCCTTAGCAGAG CTCTGGAGTGTG ACAATGGTGTTT GTGTCCAAAACA TCAAACGCCATC ATCACACTAAAC AGCTACTG	1523	mir-122a	TGGAGTGTGACAATGGTGTTTGT	214
let-7f_2	CTGGTGCTCTGT GGGATGAGGTAG TAGATTGTATAG TTTTAGGGTCAT ACCCCATCTTGG AGATAACTATAC AGTCTACTGTCT TTCCCACGGTGG TACAC	1335	let-7f (Michael et al)	TGAGGTAGTAGATTGTATAGT	1098
let-7f_2	CTGGTGCTCTGT GGGATGAGGTAG TAGATTGTATAG TTTTAGGGTCAT ACCCCATCTTGG AGATAACTATAC AGTCTACTGTCT TTCCCACGGTGG TACAC	1335	let-7f	TGAGGTAGTAGATTGTATAGTT	231
mir-127	TTTGATCACTGT CTCCAGCCTGCT GAAGCTCAGAGG GCTCTGATTCAG AAAGATCATCGG ATCCGTCTGAGC TTGGCTGGTCGG AAGTCTCATCAT CT	1337	mir-127_Ruvkun	TCGGATCCGTCTGAGCTTGG	1204
mir-127	TTTGATCACTGT CTCCAGCCTGCT GAAGCTCAGAGG GCTCTGATTCAG AAAGATCATCGG ATCCGTCTGAGC	1337	miR-127	TCGGATCCGTCTGAGCTTGGCT	1205

	TTGGCTGGTCGG AAGTCTCATCAT CT				
mir-136	GAGCCCTCGGAG GACTCCATTTGT TTTGATGATGGA TTCTTAAGCTCC ATCATCGTCTCA AATGAGTCTTCA GAGGGTTC	1338	miR-136	ACTCCATTTGTTTTGATGATGGA	1206
mir-154	CGGTGCTTGAAG ATAGGTTATCCG TGTTGCCTTCGC TTTATTCGTGAC GAATCATACACG GTTGACCTATTT TTCAGTACCAA	1339	miR-154	TAGGTTATCCGTGTTGCCTTCG	1207
mir-30c_2	ACCATGTTGTAG TGTGTGTAAACA TCCTACACTCTC AGCTGTGAGCTC AAGGTGGCTGGG AGAGGGTTGTTT ACTCCTTCTGCC ATGGAAA	1341	mir-30c	TGTAAACATCCTACACTCTCAGC	280
mir-30c_2	ACCATGTTGTAG TGTGTGTAAACA TCCTACACTCTC AGCTGTGAGCTC AAGGTGGCTGGG AGAGGGTTGTTT ACTCCTTCTGCC ATGGAAA	1341	mir-30c_Ruvkun	TGTAAACATCCTACACTCTCAGCT	1129
mir-99b	GTCCTGGCACCC ACCCGTAGAACC GACCTTGCGGGG CCTTCGCCGCAC ACAAGCTCGTGT CTGTGGGTCCGT GTCGGGGGC	1342	miR-99b	CACCCGTAGAACCGACCTTGCG	1201
MiR-125a	CCGGCCTCTGGG TCCCTGAGACCC TTTAACCTGTGA GGACGTCCAGGG TCACAGGTGAGG TTCTTGGGAGCC TGGCGCCTGGCT CAGCCACAACTT AGGGATTTCAGG TGACCCCTGGCA A	1524	miR-125a	TCCCTGAGACCCTTTAACCTGTG	1202
mir-221	TGAATATCCAGG TCTGGGGCATGA ACCTGGCATACA ATGTAGATTTCT GTGTTTGTTAGG CAACAGCTACAT TGTCTGCTGGGT TTCAGGCTACCT GGAA	1525	mir-221 (RFAM-mmu)	AGCTACATTGTCTGCTGGGTTT	1106

mir-221	TGAATATCCAGG TCTGGGGCATGA ACCTGGCATACA ATGTAGATTTCT GTGTTTGTTAGG CAACAGCTACAT TGTCTGCTGGGT TTCAGGCTACCT GGAA	1525	mir-221	AGCTACATTGTCTGCTGGGTTTC	238
mir-101_3	ATCTGAGACTGA ACTGTCCTTTTT CGGTTATCATGG TACCGATGCTGT AGATCTGAAAGG TACAGTACTGTG ATAGCTGAAGAA TGGTGGTGCCAT C	1526	mir-101b (rodent)	TACAGTACTGTGATAGCTGAAG	1460
mir-17/mir-91	GTCAGGATAATG TCAAAGTGCTTA CAGTGCAGGTAG TGGTGTGTGCAT CTACTGCAGTGA AGGCACTTGTGG CATTGTGCTGAC	1527	mir-17 (human, rat)	ACTGCAGTGAAGGCACTTGT	1180
mir-17/mir-91	GTCAGGATAATG TCAAAGTGCTTA CAGTGCAGGTAG TGGTGTGTGCAT CTACTGCAGTGA AGGCACTTGTGG CATTGTGCTGAC	1527	mir-91_Ruvkun	CAAAGTGCTTACAGTGCAGGTAG	1181
mir-17/mir-91	GTCAGGATAATG TCAAAGTGCTTA CAGTGCAGGTAG TGGTGTGTGCAT CTACTGCAGTGA AGGCACTTGTGG CATTGTGCTGAC	1527	mir-17as/mir-91	CAAAGTGCTTACAGTGCAGGTAGT	204
hypothetical miRNA 105	GTTCCTTTTTCC TATGCATATACT TCTTTGTGGATC TGGTCTAAAGAG GTATAGCGCATG GGAAAATGGAGC	1528	hypothetical miRNA-105	TTCCTATGCATATACTTCTTT	1132
mir-211	GCTTGGACCTGT GACCTCTGGGCT TCCCTTTGTCAT CCTTTGCCTAGG CCTCTGAGTGGG GCAAGGACAGCA AAGGGGGGCTCA GTGGTCACCTCT ACTGCAGA	1529	mir-211 (rodent)	TTCCCTTTGTCATCCTTTGCCT	1465
mir-217	TTTTGATGTCGC AGATACTGCATC AGGAACTGACTG GATAAGACTCAG TCACCATCAGTT CCTAATGCATTG CCTTCAGCATCT	1530	mir-217 (rodent)	TACTGCATCAGGAACTGACTGGAT	1466

	AAACA				
mir-7_3	TGAGCCAATGCT ATGTGGAAGACT TGTGATTTTGTT GTTCTGATATGA TATGACAACAAG TCACAGCCAGCC TCATAGAGTGGA CTCCCATCACCT T	1531	mir-7b (rodent)	TGGAAGACTTGTGATTTTGTT	1468
mir-325 (Ruvkun)	ATATAGTGCTTG GTTCCTAGTAGG TGCTCAGTAAGT GTTTGTGACATA ATTCGTTTATTG AGCACCTCCTAT CAATCAAGCACT GTGCTAGGCTCT GG	1357	mir-325 (rodent)	CCTAGTAGGTGCTCAGTAAGTGT	1469
mir-326 (Ruvkun)	CTCATCTGTCTG TGGGGCTGGGGG CAGGGCCTTTGT GAAGGCGGGTTA TGCTCAGATCGC CTCTGGGCCCTT CCTCCAGTCCCG AGGCAGATTTA	1532	miR-326 (Ruvkun)	CCTCTGGGCCCTTCCTCCAG	1263
mir-326 (Ruvkun)	CTCATCTGTCTG TGGGGCTGGGGG CAGGGCCTTTGT GAAGGCGGGTTA TGCTCAGATCGC CTCTGGGCCCTT CCTCCAGTCCCG AGGCAGATTTA	1532	mir-326 (rodent)	CCTCTGGGCCCTTCCTCCAGT	1470
mir-330 (Ruvkun)	GACCCTTTGGCG ATCTCTGCCTCT CTGGGCCTGTGT CTTAGGCTCTTC AAGATCTAACGA GCAAAGCACAGG GCCTGCAGAGAG GTAGCGCTCTGC TC	1533	mir-330 (rodent)	GCAAAGCACAGGGCCTGCAGAGA	1472
mir-337 (Ruvkun)	CAGTGTAGTGAG AAGTTGGGGGGT GGGAACGGCGTC ATGCAGGAGTTG ATTGCACAGCCA TTCAGCTCCTAT ATGATGCCTTTC TTCACCCCCTTC A	1361	mir-337 (rodent)	TTCAGCTCCTATATGATGCCTTT	1473
mir-345 (Ruvkun)	ACCCAAGTCCAG GCCTGCTGACCC CTAGTCCAGTGC TTGTGGTGGCTA CTGGGCCCTGAA CTAGGGGTCTGG AGACCTGGGTTT GATCTCCACAGG	1362	mir-345 (rodent)	TGCTGACCCCTAGTCCAGTGC	1474

mir_34b (RFAM)	GTGCTCGGTTTG TAGGCAGTGTAA TTAGCTGATTGT AGTGCGGTGCTG ACAATCACTAAC TCCACTGCCATC AAAACAAGGCAC	1365	mir-34b (mouse)	TAGGCAGTGTAATTAGCTGATTG	1478
mir-34	GGCCGGCTGTGA GTAATTCTTTGG CAGTGTCTTAGC TGGTTGTTGTGA GTATTAGCTAAG GAAGCAATCAGC AAGTATACTGCC CTAGAAGTGCTG CACGTTGTTAGG CC	1534	mir-34	TGGCAGTGTCTTAGCTGGTTGT	194
mir-34	GGCCGGCTGTGA GTAATTCTTTGG CAGTGTCTTAGC TGGTTGTTGTGA GTATTAGCTAAG GAAGCAATCAGC AAGTATACTGCC CTAGAAGTGCTG CACGTTGTTAGG CC	1534	miR-172 (RFAM-M. mu.)	TGGCAGTGTCTTAGCTGGTTGTT	1067
mir-7_1/mir-7_1*	TTGGATGTTGGC CTAGTTCTGTGT GGAAGACTAGTG ATTTTGTTGTTT TTAGATAACTAA GACGACAACAAA TCACAGTCTGCC ATATGGCACAGG CCA	1535	mir-7_1*_Ruvkun	CAACAAATCACAGTCTGCCATA	1070
mir-7_1/mir-7_1*	TTGGATGTTGGC CTAGTTCTGTGT GGAAGACTAGTG ATTTTGTTGTTT TTAGATAACTAA GACGACAACAAA TCACAGTCTGCC ATATGGCACAGG CCA	1535	mir-7	TGGAAGACTAGTGATTTTGTT	198
mir-10b	GTTGTAACGTTG TCTATATATACC CTGTAGAACCGA ATTTGTGTGGTA CCCACATAGTCA CAGATTCGATTC TAGGGGAATATA TGGTCGATGCAA AAACTTCA	1536	miR-10b (Tuschl)	CCCTGTAGAACCGAATTTGTGT	1071
mir-10b	GTTGTAACGTTG TCTATATATACC CTGTAGAACCGA ATTTGTGTGGTA CCCACATAGTCA CAGATTCGATTC TAGGGGAATATA	1536	mir-10b	TACCCTGTAGAACCGAATTTGT	199

	TGGTCGATGCAA AAACTTCA				
mir-10b	GTTGTAACGTTG TCTATATATACC CTGTAGAACCGA ATTTGTGTGGTA CCCACATAGTCA CAGATTCGATTC TAGGGGAATATA TGGTCGATGCAA AAACTTCA	1536	miR-10b (Michael et al)	TACCCTGTAGAACCGAATTTGTG	1072
mir-132	GCCCCGCCCCCG CGTCTCCAGGGC AACCGTGGCTTT CGATTGTTACTG TGGGAACCGGAG GTAACAGTCTAC AGCCATGGTCGC CCCGCAGCACGC CCACGC	1370	miR-132 (RFAM-Human)	TAACAGTCTACAGCCATGGTCG	1077
mir-132	GCCCCGCCCCCG CGTCTCCAGGGC AACCGTGGCTTT CGATTGTTACTG TGGGAACCGGAG GTAACAGTCTAC AGCCATGGTCGC CCCGCAGCACGC CCACGC	1370	mir-132	TAACAGTCTACAGCCATGGTCGC	206
mir-212	CCCCGCCCGGGC AGCGCGCCGGCA CCTTGGCTCTAG ACTGCTTACTGC CCGGGCCGCCCT CAGTAACAGTCT CCAGTCACGGCC ACCGACGCCTGG CCCCGCC	1537	mir-212	TAACAGTCTCCAGTCACGGCC	210
mir-108_1	CCGATGCACACT GCAAGAACAATA AGGATTTTTAGG GGCATTATGACT GAGTCAGGAAAC ACAGCTGCCCCT GAAAGTCCCTCA TTTTTCTTGCTG TCCT	1538	mir-108	ATAAGGATTTTTAGGGGCATT	207
hypothetical miRNA 023	AGATTTAATTAG CTCAGAGAAGAA ATGTTGCTTGGG CAAGAGGACTTT TTAATTATCAGC TTGGATAAATTT GAAAATGTTGAT GCCTAGGGGTTG AGTTAATTAAAA CC	26	hypothetical miRNA-023	TGGGCAAGAGGACTTTTTAAT	1079
mir-214	CCTGGATGGACA GAGTTGTCATGT GTCTGCCTGTCT ACACTTGCTGTG	1539	mir-214	ACAGCAGGCACAGACAGGCAG	219

	CAGAACATCCGC TCACCTGTACAG CAGGCACAGACA GGCAGTCACATG ACAACCCAGCCT				
hypothetical miRNA 040	GCCAGCAAATAA TGGCTGTTGTAT TAGCTGCTTTTG ATGATAGTATGA AAGAAGTATTAG CACTTGTCAACA AAACTGCTTACA ACATAACATTAG CATGCATGGGCT GC	43	hypothetical miRNA-040	TGTCAACAAAACTGCTTACAA	1092
hypothetical miRNA 043	CCCCTTATAGGC TCGTTTTGACAG GAAATCTTTGAG AGGCAGCGGCAG TGAGGTGCCCAG AGAGTTCATCTC TCTCTTTTGCTT TAGGAAATGCTG AGTACAAGGCTC C	1540	hypothetical miRNA-043	TGACAGGAAATCTTTGAGAGG	1094
mir-205	CAGACAATCCAT GGGTCCTCCTGT CCTTCATTCCAC CGGAGTCTGTCT TATGCCAACCAG ATTTCAGTGGAG TGAAGCTCAGGA GGCATGGAGCTG	1541	mir-205	TCCTTCATTCCACCGGAGTCTG	224
mir-33a	CCTCCTGGCGGG CTGCCGTGGTGC ATTGTAGTTGCA TTGCATGTTCTG GCAGTACCTGTG CAATGTTTCCAC AGTGCATCACGG AGGCCTGCC	1542	mir-33a	GTGCATTGTAGTTGCATTG	227
mir-196_2	TTGCTCAGCTGA TCTGTGGCTTAG GTAGTTTCATGT TGTTGGGATTGA GTTTTGAACTCG GCAACAAGAAAC TGCCTGAGTTAC ATCAGTCGGTTT TCGTCGAGGGC	1543	miR-196 (Tuschl)	TAGGTAGTTTCATGTTGTTGG	1097
mir-196_2	TTGCTCAGCTGA TCTGTGGCTTAG GTAGTTTCATGT TGTTGGGATTGA GTTTTGAACTCG GCAACAAGAAAC TGCCTGAGTTAC ATCAGTCGGTTT TCGTCGAGGGC	1543	mir-196	TAGGTAGTTTCATGTTGTTGGG	228
mir-218_1	GTGATAACGTAG CGAGATTTTCTG	1544	mir-218	TTGTGCTTGATCTAACCATGT	234

	TTGTGCTTGATC TAACCATGTGCT TGCGAGGTATGA GTAAAACATGGT TCCGTCAAGCAC CATGGAACGTCA CGCAGCTTTCTA CA				
mir-218_1	GTGATAACGTAG CGAGATTTTCTG TTGTGCTTGATC TAACCATGTGCT TGCGAGGTATGA GTAAAACATGGT TCCGTCAAGCAC CATGGAACGTCA CGCAGCTTTCTA CA	1544	mir-253* (Kosik)	TTGTGCTTGATCTAACCATGTG	1103
mir-222	CCCTCAGTGGCT CAGTAGCCAGTG TAGATCCTGTCT TTGGTAATCAGC AGCTACATCTGG CTACTGGGTCTC TGATGGCATCAT CTAGCT	1545	mir-222 (RFAM-mmu)	AGCTACATCTGGCTACTGGGTCT	1107
mir-222	CCCTCAGTGGCT CAGTAGCCAGTG TAGATCCTGTCT TTGGTAATCAGC AGCTACATCTGG CTACTGGGTCTC TGATGGCATCAT CTAGCT	1545	mir-222	AGCTACATCTGGCTACTGGGTCTC	239
mir-128b	CCCGGCAGCCAC TGTGCAGTGGGA AGGGGGGCCGAT GCACTGTAAGAG AGTGAGTAGCAG GTCTCACAGTGA ACCGGTCTCTTT CCCTACTGTGTC AAACTCCTAA	1381	mir-128 (Kosik)	TCACAGTGAACCGGTCTCTTT	1073
mir-128b	CCCGGCAGCCAC TGTGCAGTGGGA AGGGGGGCCGAT GCACTGTAAGAG AGTGAGTAGCAG GTCTCACAGTGA ACCGGTCTCTTT CCCTACTGTGTC AAACTCCTAA	1381	mir-128b	TCACAGTGAACCGGTCTCTTTC	242
mir-219_2	GCCCTGAACTCA GGGGCTTCACCA CTGATTGTCCAA ACGCAATTCTTG TACGAGTCTGCG GCCAACCGAGAA TTGTGGCTGGAC ATCTGTGGTTGA GCTCCGG	1546	mir-219	TGATTGTCCAAACGCAATTCT	271

hypothetical miRNA 070	GATGCTTGATGTTGTCAGACTGAAGAATCTCTACAAGTAAGTGTGTGATTTCTTCAGTGACATCACATTTGCCTGCAGAGATTTCCCAGTCTGCCA	1547	hypothetical miRNA-070	TCACATTTGCCTGCAGAGATT	1109
mir-129_2	CTGCCCTTCGCGAATCTTTTTGCGGTCTGGGCTTGCTGTACATAACTCAATAGCCGGAAGCCCTTACCCCAAAAAGCATTCGCGGAGGGCGCGCTCG	1548	mir-129as/mir-258* (Kosik)	AAGCCCTTACCCCAAAAAGCAT	1110
mir-129_2	CTGCCCTTCGCGAATCTTTTTGCGGTCTGGGCTTGCTGTACATAACTCAATAGCCGGAAGCCCTTACCCCAAAAAGCATTCGCGGAGGGCGCGCTCG	1548	mir-129	CTTTTTGCGGTCTGGGCTTGC	243
mir-129_2	CTGCCCTTCGCGAATCTTTTTGCGGTCTGGGCTTGCTGTACATAACTCAATAGCCGGAAGCCCTTACCCCAAAAAGCATTCGCGGAGGGCGCGCTCG	1548	miR-129b (RFAM-Human)	CTTTTTGCGGTCTGGGCTTGCT	1111
mir-133b	GCCCCCTGCTCTGGCTGGTCAAACGGAACCAAGTCCGTCTTCCTGAGAGGTTTGGTCCCCTTCAACCAGCTACAGCAGGGCTGGCAA	1385	mir-133b	TTGGTCCCCTTCAACCAGCTA	244
hypothetical miRNA 075	AGCGCAGCTTTAATTACTCATGCTGCTGGTTAAAATATTAATGGGGCACAGAGTGTTGCATGCTCATTTCTGTTGATTTTTAATTAGCAGTAATTCATTTTGCACAAAGC	78	hypothetical miRNA-075	TGGTTAAAATATTAATGGGGC	1112
mir-204	GGCTACAGCCCTTCTTCATGTGACTCGTGGACTTCCCTTTGTCATCCTATGCCTGAGAATATATGAAGGAGGCTGGGAAGGCAAAGGGACGTTCAA	1549	mir-204	TTCCCTTTGTCATCCTATGCCT	251

	TTGTCATCACTG GC				
mir-204	GGCTACAGCCCT TCTTCATGTGAC TCGTGGACTTCC CTTTGTCATCCT ATGCCTGAGAAT ATATGAAGGAGG CTGGGAAGGCAA AGGGACGTTCAA TTGTCATCACTG GC	1549	miR-204 (Tuschl)	TTCCCTTTGTCATCCTATGCCTG	1121
mir-213/ mir-181a_2	AGGTTGCTTCAG TGAACATTCAAC GCTGTCGGTGAG TTTGGAATTCAA ATAAAAACCATC GACCGTTGATTG TACCCTATAGCT AACCATTATCTA CTCC	1550	mir-178 (Kosik)	AACATTCAACGCTGTCGGTGAG	1096
mir-213/ mir-181a_2	AGGTTGCTTCAG TGAACATTCAAC GCTGTCGGTGAG TTTGGAATTCAA ATAAAAACCATC GACCGTTGATTG TACCCTATAGCT AACCATTATCTA CTCC	1550	mir-181a	AACATTCAACGCTGTCGGTGAGT	223
mir-213/ mir-181a_2	AGGTTGCTTCAG TGAACATTCAAC GCTGTCGGTGAG TTTGGAATTCAA ATAAAAACCATC GACCGTTGATTG TACCCTATAGCT AACCATTATCTA CTCC	1550	mir-213	ACCATCGACCGTTGATTGTACC	253
hypothetical miRNA 090	CAGCGATACATT AATGCTCATCTG GCTCTGCAAATC TCACCGTTTGCT TAGGCCAAATGG CGCATCAATGAC TATCGCTCTTAC AAAACTCTTGAA TCAGTATTATGT AA	1551	hypothetical miRNA-090	TAGGCCAAATGGCGCATCAAT	1124
mir-138_2	GGTATGGTTGCT GCAGCTGGTGTT GTGAATCAGGCC GACGAGCAACGC ATCCTCTTACCC GGCTATTTCACG ACACCAGGGTTG CACCCTACCCAT CCTC	1552	mir-138	AGCTGGTGTTGTGAATC	256
mir-138_2	GGTATGGTTGCT GCAGCTGGTGTT GTGAATCAGGCC	1552	mir-138_Ruvkun	AGCTGGTGTTGTGAATCAGGCCG	1127

	GACGAGCAACGC ATCCTCTTACCC GGCTATTTCACG ACACCAGGGTTG CACCCTACCCAT CCTC				
mir-199a_2	GGAAGCTTCTGG AGATCCTGCTCC GTCGCCCCAGTG TTCAGACTACCT GTTCAGGACAAT GCCGTTGTACAG TAGTCTGCACAT TGGTTAGACTGG GCAAGGG	1553	miR-199-s	CCCAGTGTTCAGACTACCTGTT	1128
mir-199a_2	GGAAGCTTCTGG AGATCCTGCTCC GTCGCCCCAGTG TTCAGACTACCT GTTCAGGACAAT GCCGTTGTACAG TAGTCTGCACAT TGGTTAGACTGG GCAAGGG	1553	mir-199a	CCCAGTGTTCAGACTACCTGTTC	259
mir-199a_2	GGAAGCTTCTGG AGATCCTGCTCC GTCGCCCCAGTG TTCAGACTACCT GTTCAGGACAAT GCCGTTGTACAG TAGTCTGCACAT TGGTTAGACTGG GCAAGGG	1553	miR-199-as	TACAGTAGTCTGCACATTGGTT	1118
hypothetical miRNA 101	GTATATTCAAGG ACAGGCCATTGA CAGTCAATTAAC AAGTTTGATTGG TATGTCAACTCA TTCTTTTGAATT GTTAATAGTATG TTAATAGCGTTC GTTTCTTTGTGC AG	1554	hypothetical miRNA-101	TGACAGTCAATTAACAAGTTT	1130
mir-148b	TTAGCATTTGAG GTGAAGTTCTGT TATACACTCAGG CTGTGGCTCTGA AAGTCAGTGCAT CACAGAACTTTG TCTCGAAAGCTT TCTAGCAGC	1397	mir-148b	TCAGTGCATCACAGAACTTTGT	272
mir-216	GCTATGAGTTAG TTTAATCTCAGC TGGCAACTGTGA GATGTCCCTATC ATTCCTCACAGT GGTCTCTGGGAT TATGCTAAACAG AGCAATTTCCT	1555	mir-216	TAATCTCAGCTGGCAACTGTG	274
hypothetical miRNA 137	GTTCAACATAAG CAAACAGATTGT	1399	hypothetical miRNA-137	TAAACTGGCTGATAATTTTTG	1141

	AAACTGGCTGAT AATTTTTGTACT GACAATGTCATT TACAGCTGTCAG CCTTTCGTCTGT CTTGTTTGCTTT ATTCAAATATGA AC				
hypothetical miRNA 138	CCCTCCAATGTC TGATTAATCAAG CCTGCAAACAGC TTATTTCTTTTT GCCTGCATGCAA GTATGAAAATGA GATTCTGGGAGC CGAACACTGTGC AGATTTGTTCAT TC	1556	hypothetical miRNA-138	TGCAAGTATGAAAATGAGATT	1142
mir-210	GGCAGTCCCTCC AGGCTCAGGACA GCCACTGCCCAC AGCACACTGCGT TGCTCCGGACCC ACTGTGCGTGTG ACAGCGGCTGAT CTGTCCCTGGGC AGCGCGA	1557	mir-210	CTGTGCGTGTGACAGCGGCTG	277
mir-223	CTGCAGTGTTAC GCTCCGTGTATT TGACAAGCTGAG TTGGACACTCTG TGTGGTAGAGTG TCAGTTTGTCAA ATACCCCAAGTG TGGCTCATGC	1558	mir-223	TGTCAGTTTGTCAAATACCCC	279
hypothetical miRNA 154	CCTGCAGTGATG CTTCATGAGCAA ATCACATGATGT CAGAATGGTATG GTTTCGATTTAA TCAAGAAAGAGA TTAAAGTGGATG TGTGTTATTTTC AACTTCGCCGCA GC	1404	hypothetical miRNA-154	TTAAAGTGGATGTGTGTTATT	1146
non-coding RNA in rhabdomyosarcoma/ mir-135_2	CCAAGATAAATT CACTCTAGTGCT TTATGGCTTTTT ATTCCTATGTGA TCGTAATAAAGT CTCATGTAGGGA TGGAAGCCATGA AATACATTGTGA AAATTCATCAAC T	13	miR-135 (RFAM-Human)	TATGGCTTTTTATTCCTATGTGA	1149
non-coding RNA in rhabdomyosarcoma/ mir-135_2	CCAAGATAAATT CACTCTAGTGCT TTATGGCTTTTT ATTCCTATGTGA TCGTAATAAAGT CTCATGTAGGGA	13	mir-135	TATGGCTTTTTATTCCTATGTGAT	283

	TGGAAGCCATGA AATACATTGTGA AAATTCATCAAC T				
hypothetical miRNA 170	GAATGTATGATC TTGCTCTAACAC TTGGCCAGACCT GTGTCACCCACT GCTAGTGCCTGA AGTCGACAGACA ATTCTGCCAAGG TAACTGAGAATC ATTAAGCATCCT GC	1559	hypothetical miRNA-170	TGATCTTGCTCTAACACTTGG	1157
glutamate receptor, ionotropic, AMPA 2 / hypothetical miRNA-171	CACCCTGTCTGA CAAGTATGTTTT ATCGTTTCAAGA AATGCGGTTAAC CTCGCAGTACTA AAACTGAATGAA CAAGGCCTGTTG GACAAATTGAAA AACAAATGGTGG TA	174	hypothetical miRNA-171	TGACAAGTATGTTTTATCGTT	1158
hypothetical miRNA 176	TGGAAGGAAAAT AGGAGTTTGATA TGACATATTGTG TGTCTCAGCAAG ACTCATAAATAA TTTTGACAAGTT TTTGTATGCATG GGAAAGTCCTTG ATTCAGCCTCCC AT	179	hypothetical miRNA-176	TAGGAGTTTGATATGACATAT	1163
hypothetical miRNA 179	AATGCCAGCGAG TTTGAAAGGCAC TTTGTCCAATTA GAAGTGTGGGGA GCTATCCATCCT GTCCATGACCAA GATGAAGCACTT CTTTCAAAAG	1560	hypothetical miRNA-179	TGAAAGGCACTTTGTCCAATT	1166
hypothetical miRNA 181	TGTGCACCTCAC CTGCTCTGGAAG TAGTTTGCTAGC TCTGATGCTTCA TGGTTCAGACTC CTCAGGTGCACG ATTAAATTTCCA GAGTTGGTGAAC ATGGCGCCACAT G	1409	hypothetical miRNA-181	TCACCTGCTCTGGAAGTAGTT	1167
mir-181c	TTGCCAAGGGTT TGGGGGAACATT CAACCTGTCGGT GAGTTTGGGCAG CTCAGACAAACC ATCGACCGTTGA GTGGACCCCGAG GCCTGGAACTGC CA	1410	mir-181c	AACATTCAACCTGTCGGTGAGT	290

mir-100_1	CCTGTTGCCACA AACCCGTAGATC CGAACTTGTGCT GACCATGCACAC AAGCTTGTGTCT ATAGGTATGTGT CTGTTAGG	1561	mir-100	AACCCGTAGATCCGAACTTGTG	275
mir-103_1	TACTGCCCTCGG CTTCTTTACAGT GCTGCCTTGTTG CATATGGATCAA GCAGCATTGTAC AGGGCTATGAAG GCATTG	950	mir-103	AGCAGCATTGTACAGGGCTATGA	225
mir-107	CTCTCTGCTTTA AGCTTCTTTACA GTGTTGCCTTGT GGCATGGAGTTC AAGCAGCATTGT ACAGGGCTATCA AAGCACAGA	1562	mir-107	AGCAGCATTGTACAGGGCTATCA	229
mir-19a	CCTCTGTTCGTT TTGCATAGTTGC ACTACAAGAAGA ATGTAGTTGTGC AAATCTATGCAA AACTGATGGTGG CCTG	1563	mir-19a	TGTGCAAATCTATGCAAAACTGA	268
mir-19b_1	TCTATGGTTAGT TTTGCAGGTTTG CATCCAGCTGTA TAATATTCTGCT GTGCAAATCCAT GCAAAACTGACT GTGGT	1414	mir-19b* (Michael et al)	AGTTTTGCAGGTTTGCATCCAGC	1179
mir-19b_1	TCTATGGTTAGT TTTGCAGGTTTG CATCCAGCTGTA TAATATTCTGCT GTGCAAATCCAT GCAAAACTGACT GTGGT	1414	mir-19b	TGTGCAAATCCATGCAAAACTGA	241
mir-92_1	CTTTCTACACAG GTTGGGATTTGT CGCAATGCTGTG TTTCTGTATAGT ATTGCACTTGTC CCGGCCTGTTGA GTTTGG	1564	miR-92 (RFAM-M. mu.)	TATTGCACTTGTCCCGGCCTG	1182
mir-92_1	CTTTCTACACAG GTTGGGATTTGT CGCAATGCTGTG TTTCTGTATAGT ATTGCACTTGTC CCGGCCTGTTGA GTTTGG	1564	mir-92	TATTGCACTTGTCCCGGCCTGT	216
mir-98	GTGAGGTAGTAA GTTGTATTGTTG TGGGGTAGGGAT TTTAGGCCCCAA TAAGAAGATAAC	1565	mir-98	TGAGGTAGTAAGTTGTATTGTT	257

	TATACAACTTACTACTTTCC				
mir-104 (Mourelatos)	AAATGTCAGACAGCCCATCGACTGCTGTTGCCATGAGATTCAACAGTCAACATCAGTCTGATAAGCTACCCGACAAGG	1566	miR-104 (Mourelatos)	TCAACATCAGTCTGATAAGCTA	335
mir-27 (Mourelatos)	CCTGTGGAGCAGGGCTTAGCTGCTTGTGAGCAAGGTCTACAGCAAAGTCGTGTTCACAGTGGCTAAGTTCCGCCCCC	1567	miR-27 (Mourelatos)	TTCACAGTGGCTAAGTTCC	1186
mir-27 (Mourelatos)	CCTGTGGAGCAGGGCTTAGCTGCTTGTGAGCAAGGTCTACAGCAAAGTCGTGTTCACAGTGGCTAAGTTCCGCCCCC	1567	miR-27a (RFAM-M. mu.)	TTCACAGTGGCTAAGTTCCGC	1187
mir-27 (Mourelatos)	CCTGTGGAGCAGGGCTTAGCTGCTTGTGAGCAAGGTCTACAGCAAAGTCGTGTTCACAGTGGCTAAGTTCCGCCCCC	1567	miR-27a (RFAM-Human)	TTCACAGTGGCTAAGTTCCGCC	1188
mir-31	CTCCTGAAACTTGGAACTGGAGAGGAGGCAAGATGCTGGCATAGCTGTTGAACTGAGAACCTGCTATGCCAACATATTGCCATCTTTCCTGTCTGACAGCAGC	1568	miR-31 (RFAM-M. mu.)	AGGCAAGATGCTGGCATAGCTG	1197
mir-31	CTCCTGAAACTTGGAACTGGAGAGGAGGCAAGATGCTGGCATAGCTGTTGAACTGAGAACCTGCTATGCCAACATATTGCCATCTTTCCTGTCTGACAGCAGC	1568	miR-31 (Tuschl)	GGCAAGATGCTGGCATAGCTG	1198
mir-32	GCTTGCTCTGGTGGGGATATTGCACATTACTAAGTTGCATGTTGTCACGGCCTCAATGCAATTTAGTGTGTGTGATATTCTCACATGAGTGCATGCA	1569	miR-32 (Tuschl)	TATTGCACATTACTAAGTTGC	1199
mir_186	ATTGCTTACAACTTTCCAAAGAATTCTCCTTTTGGGCTTTCTCATTTT	1570	miR-186	CAAAGAATTCTCCTTTTGGGCTT	1208

	ATTTTAAGCCCA AAGGTGAATTTT TTGGGAAGTTTG AGCT				
mir_191	CCAATGGCTGGA CAGCGGGCAACG GAATCCCAAAAG CAGCTGTTGTCT CCAGAGCATTCC AGCTGCACTTGG ATTTCGTTCCCT GCTCTCCTGCCT GAGC	1571	mir-191	CAACGGAATCCCAAAAGCAGCT	1210
mir_191	CCAATGGCTGGA CAGCGGGCAACG GAATCCCAAAAG CAGCTGTTGTCT CCAGAGCATTCC AGCTGCACTTGG ATTTCGTTCCCT GCTCTCCTGCCT GAGC	1422	mir- 191_Ruvkun	CAACGGAATCCCAAAAGCAGCTGT	1211
mir_195	CCTGGCTCTAGC AGCACAGAAATA TTGGCACGGGTA AGTGAGTCTGCC AATATTGGCTGT GCTGCTCCAGGC AGGGTGGTG	1572	miR-195	TAGCAGCACAGAAATATTGGC	1216
mir_193	GGGAGCTGAGAG CTGGGTCTTTGC GGGCAAGATGAG GGTGTCAGTTCA ACTGGCCTACAA AGTCCCAGTCCT CGG	1573	miR-193	AACTGGCCTACAAAGTCCCAG	1217
mir_208	TTCCTTTGACGG GTGAGCTTTTGG CCCGGGTTATAC CTGACTCTCACG TATAAGACGAGC AAAAAGCTTGTT GGTCAGAGGAG	1574	miR-208	ATAAGACGAGCAAAAAGCTTGT	1222
mir_139	GGACAGGCGCAG GTGTATTCTACA GTGCACGTGTCT CCAGTGTGGCTC GGAGGCTGGAGA CGCGGCCCTGTT GGAGTAACAACT GAAGCCAGAGTC T	1427	miR-139	TCTACAGTGCACGTGTCT	1223
mir-200b	GTGGCCATCTTA CTGGGCAGCATT GGATAGTGTCTG ATCTCTAATACT GCCTGGTAATGA TGACGGCGGAG	1428	miR-200a (RFAM-Human)	CTCTAATACTGCCTGGTAATGATG	1224
mir-200b	GTGGCCATCTTA CTGGGCAGCATT GGATAGTGTCTG	1428	miR-200b (Michael et al)	TAATACTGCCTGGTAATGATGA	1225

	ATCTCTAATACT GCCTGGTAATGA TGACGGCGGAG				
mir-200b	GTGGCCATCTTA CTGGGCAGCATT GGATAGTGTCTG ATCTCTAATACT GCCTGGTAATGA TGACGGCGGAG	1428	miR-200b	TAATACTGCCTGGTAATGATGAC	1226
mir-200a	GGGCCTCTGTGG GCATCTTACCGG ACAGTGCTGGAT TTCTTGGCTTGA CTCTAACACTGT CTGGTAACGATG TTCAAAGGTGAC CC	1429	miR-200a	TAACACTGTCTGGTAACGATG	1227
mir-200a	GGGCCTCTGTGG GCATCTTACCGG ACAGTGCTGGAT TTCTTGGCTTGA CTCTAACACTGT CTGGTAACGATG TTCAAAGGTGAC CC	1429	miR-200a (RFAM-M. mu.)	TAACACTGTCTGGTAACGATGT	1228
mir-227* (Kosik)/mir-226* (Kosik)	TGACTATGCCTC CTCGCATCCCCT AGGGCATTGGTG TAAAGCTGGAGA CCCACTGCCCCA GGTGCTGCTGGG GGTTGTAGTCT	1430	mir-226* (Kosik)	ACTGCCCCAGGTGCTGCTGG	1231
mir-227* (Kosik)/mir-226* (Kosik)	TGACTATGCCTC CTCGCATCCCCT AGGGCATTGGTG TAAAGCTGGAGA CCCACTGCCCCA GGTGCTGCTGGG GGTTGTAGTCT	1430	mir-324-3p_Ruvkun	CCACTGCCCCAGGTGCTGCTGG	1232
mir-227* (Kosik)/mir-226* (Kosik)	TGACTATGCCTC CTCGCATCCCCT AGGGCATTGGTG TAAAGCTGGAGA CCCACTGCCCCA GGTGCTGCTGGG GGTTGTAGTCT	1430	mir-227* (Kosik)	CGCATCCCCTAGGGCATTGGTGT	1233
mir-244* (Kosik)	GTCCTCCCCAAC AATATCCTGGTG CTGAGTGGGTGC ACAGTGACTCCA GCATCAGTGATT TTGTTGAAGAGG GCAGCTGCCA	1431	mir-244* (Kosik)	TCCAGCATCAGTGATTTTGTTGA	1234
mir-224* (Kosik)	TGGTACTTGGAG AGAGGTGGTCCG TGGCGCGTTCGC TTCATTTATGGC GCACATTACACG GTCGACCTCTTT GCGGTATCTA	1432	mir-224* (Kosik)	GCACATTACACGGTCGACCTCT	1235

mir-248* (Kosik)	GAAAATGGGCTC AAGGTGAGGGGT GCTATCTGTGAT TGAGGGACATGG TCAATGGAATTG TCTCACACAGAA ATCGCACCCGTC ACCTTGGCCT	1433	mir-248* (Kosik)	TCTCACACAGAAATCGCACCCGTC	1236
mir-138_3	ATGGTGTTGTGG GACAGCTGGTGT TGTGAATCAGGC CGTTGCCAATCA GAGAACGGCTAC TTCACAACACCA GGG	1575	mir-138	AGCTGGTGTTGTGAATC	256
mir-138_3	ATGGTGTTGTGG GACAGCTGGTGT TGTGAATCAGGC CGTTGCCAATCA GAGAACGGCTAC TTCACAACACCA GGG	1575	mir-138_Ruvkun	AGCTGGTGTTGTGAATCAGGCCG	1127
mir-181b_2	ATGGCTGCACTC AACATTCATTGC TGTCGGTGGGTT TGAATGTCAACC AACTCACTGGTC AATGAATGCAAA CTGCGGGCCAAA	1576	mir-181b	AACATTCATTGCTGTCGGTGGGTT	260
mir-134 (Sanger)	CAGGGTGTGTGA CTGGTTGACCAG AGGGGCGTGCAC TTTGTTCACCCT GTGGGCCACCTA GTCACCAACCCT C	1289	miR-134 (RFAM-Human)	TGTGACTGGTTGACCAGAGGG	1240
mir-146 (Sanger)	TGTGTATCCTCA GCTCTGAGAACT GAATTCCATGGG TTATAGCAATGT CAGACCTGTGAA GTTCAGTTCTTT AGCTGGGATAGC TCT	1577	miR-146 (RFAM-Human)	TGAGAACTGAATTCCATGGGTT	1241
mir-30e (RFAM/mmu)	GGGCAGTCTTTG CTACTGTAAACA TCCTTGACTGGA AGCTGTAAGGTG TTGAGAGGAGCT TTCAGTCGGATG TTTACAGCGGCA GGCTGCCAC	1578	miR-30e (RFAM-M. mu.)	TGTAAACATCCTTGACTGGA	1243
mir-30e (RFAM/mmu)	GGGCAGTCTTTG CTACTGTAAACA TCCTTGACTGGA AGCTGTAAGGTG TTGAGAGGAGCT TTCAGTCGGATG TTTACAGCGGCA GGCTGCCAC	1578	miR-97 (Michael et al)	TGTAAACATCCTTGACTGGAAG	1244

mir-299 (RFAM/mmu)	CGGTACTTGAAGAAATGGTTTACCGTCCCACATACATTTTGAGTATGTATGTGGGACGGTAAACCGCTTCTTGGTATCC	1440	miR-299 (RFAM-M. mu.)	TGGTTTACCGTCCCACATACAT	1246
mir-34a (RFAM/mmu)	TGAGTCTAGTTACTAGGCAGTGTAGTTAGCTGATTGCTAATAGTACCAATCACTAACCACACAGCCAGGTAAAAAGA	1579	mir-34c (RFAM)	AGGCAGTGTAGTTAGCTGATTG	1250
mir-34a (RFAM/mmu)	TGAGTCTAGTTACTAGGCAGTGTAGTTAGCTGATTGCTAATAGTACCAATCACTAACCACACAGCCAGGTAAAAAGA	1579	miR-34a (RFAM-M. mu.)	AGGCAGTGTAGTTAGCTGATTGC	1251
mir-135b (Ruvkun)	TGCTGTGGCCTATGGCTTTTCATTCCTATGTGATTGCTGTTCCGAACTCATGTAGGGCTAAAAGCCATGGGCTACAGTG	1580	mir-135b (Ruvkun)	TATGGCTTTTCATTCCTATGTG	1254
mir-331 (Ruvkun)	TGTTTGGGTTTGTTCTAGGTATGGTCCCAGGGATCCCAGATCAAACCAGGCCCCTGGGCCTATCCTAGAACCAACCTAA	1442	mir-331 (Ruvkun)	GCCCCTGGGCCTATCCTAGAA	1258
mir-187	CCTCAGGCTACAACACAGGACCCGGGCGCTGCTCTGACCCCTCGTGTCTTGTGTTGCAGCCGGAGGGACGCAGGTC	1443	miR-187 (RFAM-Human)	TCGTGTCTTGTGTTGCAGCCG	1270
mir-187	CCTCAGGCTACAACACAGGACCCGGGCGCTGCTCTGACCCCTCGTGTCTTGTGTTGCAGCCGGAGGGACGCAGGTC	1443	mir-187	TCGTGTCTTGTGTTGCAGCCGG	276
collagen, type I, alpha 1/ hypothetical miRNA-144	CACGCATGAGCCGAAGCTAACCCCCCACCCCAGCCGCAAAGAGTCTACATGTCTAGGGTCTAGACATGTTCAGCTTTGTGGACCTCCGGCTCCTGCTCCTCTTAGGGGCCA	1581	hypothetical miRNA-144	AGACATGTTCAGCTTTGTGGA	1063
DiGeorge syndrome	TTAAGCTGAGTGCATTGTGATTTC	1582	hypothetical miRNA-088	TGTGATTTCCAATAATTGAGG	1123

critical region gene 8/ hypothetical miRNA-088	CAATAATTGAGG CAGTGGTTCTAA AAGCTGTCTACA TTAATGAAAAGA GCAATGTGGCCA GCTTGACTAA				
hypothetical miR-13/miR-190	CTGGATGCCTTT TCTGCAGGCCTC TGTGTGATATGT TTGATATATTAG GTTGTTATTTAA TCCAACTATATA TCAAGCATATTC CTACAGTGTCTT GCCCTGTCTCCG GG	1583	miR-190	TGATATGTTTGATATATTAGGT	1075
hypothetical miRNA 039	CTTGGGTGGGCA GCTGTTAAGACT TGCAGTGATGTT TAGCTCCTCTCC ATGTGAACATCA CAGCAAGTCTGT GCTGCTGCCTGC CCCCATGCTGCC TGGG	1584	hypothetical miRNA-039	TAAGACTTGCAGTGATGTTTA	1091
hypothetical miRNA 041	CATACACGGCTG TTACACAGGTTT TCCCATGATAAG GCGATAGGTTAA TGAAATGCTCAT TTCATTTTACCA GTTGTTTTCTCT GTGAAGTTCCGA TAAGTAGCAAAC CA	1585	hypothetical miRNA-041	TACCAGTTGTTTTCTCTGTGA	1093
hypothetical miRNA 044	GCCTGAAATGAA ATTACCATATTT TTAATCTTAATT TTCCACTCTGTT TATCTGACAGTG TGGATGTGCAAT CCAAACAGATAA TGAGAGAGTGGG ATATTGACACCG CT	47	hypothetical miRNA-044	TTCCACTCTGTTTATCTGACA	1095
hypothetical miRNA 083	TGGCAGGTTGTT TAGTTTTTTCGT TTGAAGGTTTTC ATTAGTCTAATG AGGACTGTGCAA GGGCGAGCAGTC AGCACAATTTAC ATGGGGAAGCTA TCATAATAAATG AA	86	hypothetical miRNA-083	TTACATGGGGAAGCTATCATA	1119
hypothetical miRNA 107	CTATAATGCTTA GATTATCAATCA TCTTGACAGTTT ATTGGCTTTATC ACCACACATACC ATTAAAATGATG	1586	hypothetical miRNA-107	TGACAGTTTATTGGCTTTATC	1133

	TCTGGCCCAGAC TGTCAAAAGCAA ACATTAAACAGA CC				
mir-10a	CTGTCTGTCTTC TGTATATACCCT GTAGATCCGAAT TTGTGTAAGGAA TTTTGTGGTCAC AAATTCGTATCT AGGGGAATATGT AGTTGACATAAA CACTCCGCTC	1587	mir-10a (Tuschl)	TACCCTGTAGATCCGAATTTGT	1139
mir-10a	CTGTCTGTCTTC TGTATATACCCT GTAGATCCGAAT TTGTGTAAGGAA TTTTGTGGTCAC AAATTCGTATCT AGGGGAATATGT AGTTGACATAAA CACTCCGCTC	1587	mir-10a	TACCCTGTAGATCCGAATTTGTG	267
mir-130b	GACACTCTTTCC CTGTTGCACTAC TGTGGGCCTCTG GGAAGCAGTGCA ATGATGAAAGGG CATCCGTCAGG	1588	mir-130b	CAGTGCAATGATGAAAGGGC	273
mir-130b	GACACTCTTTCC CTGTTGCACTAC TGTGGGCCTCTG GGAAGCAGTGCA ATGATGAAAGGG CATCCGTCAGG	1588	mir-266* (Kosik)	CAGTGCAATGATGAAAGGGCAT	1140
hypothetical miRNA-177_1	GGGAACCAGTGC TTTCAGTAAGAG GGTGGTACCACA TGTCTTCAAAAT GAAACGTCTCTT GGAGACAAACAT GCTACTCTCACT G	1589	hypothetical miRNA-177	AGACAAACATGCTACTCTCAC	1164
mir_185	GGGGGTGAGGGA TTGGAGAGAAAG GCAGTTCCTGAT GGTCCCCTCCCA GGGGCTGGCTTT CCTCTGGTCCTT CTCTCCCA	1590	miR-185	TGGAGAGAAAGGCAGTTC	1218
mir_194_2	TCCCACCCCCTG TAACAGCAACTC CATGTGGAAGTG CCCACTGATTCC AGTGGGGCTGCT GTTATCTGGGG	1591	miR-194	TGTAACAGCAACTCCATGTGGA	1221
mir-150 (Sanger)	GGCCCTGTCTCC CAACCCTTGTAC CAGTGCTGTGCC TCAGACCCTGGT ACAGGCCTGGGG GACAGGGACTTG	1592	miR-150 (RFAM-Human)	TCTCCCAACCCTTGTACCAGTG	1242

	GGGAC				
mir-301 (RFAM/mmu)	TACTGCTGACGA CTGCTCTGACTT TATTGCACTACT GTACTGTACAGC TAGCAGTGCAAT AGTATTGTCAAA GCATC	1593	miR-301 (RFAM-M. mu.)	CAGTGCAATAGTATTGTCAAAGC	1247
mir-301 (RFAM/mmu)	TACTGCTGACGA CTGCTCTGACTT TATTGCACTACT GTACTGTACAGC TAGCAGTGCAAT AGTATTGTCAAA GCATC	1593	mir-301 _Ruvkun	CAGTGCAATAGTATTGTCAAAGCAT	1248
mir_320	CCTCCGCCTTCT CTTCCCGGTTCT TCCCGGAGTCGG GAAAAGCTGGGT TGAGAGGGCGAA AAAGGAT	1594	miR-320	AAAAGCTGGGTTGAGAGGGCGAA	1252
mir_200c (RFAM)	GGGGCCCTCGTC TTACCCAGCAGT GTTTGGGTGCTG GTTGGGAGTCTC TAATACTGCCGG GTAATGATGGAG GCCCCTG	1595	mir-200c (RFAM)	AATACTGCCGGGTAATGATGGA	1259
miR-322	CCTCGCTGACTC CGAAGGGATGCA GCAGCAATTCAT GTTTTGGAGTAT TGCCAAGGTTCA AAACATGAAGCG CTGCAACACCCC TTCGTGGGAAA	1596	miR-322	AAACATGAAGCGCTGCAACA	1489
miR-341	AAAATGATGATG TCAGTTGGCCGG TCGGCCGATCGC TCGGTCTGTCAG TCAGTCGGTCGG TCGATCGGTCGG TCGGTCAGTCGG CTTCCTGTCTTC	1457	miR-341	TCGATCGGTCGGTCGGTCAGT	1494
miR-344	CTGCAGCCAGAG TTTTTACCAGTC AGGCTCCTGGCT AGATTCCAGGTA CCAACTGGTACC TGATCTAGCCAA AGCCTGACCGTA AGCTGCAAAAGA AA	1597	miR-344	TGATCTAGCCAAAGCCTGACCGT	1610
miR-350	AGATGCCTTGCT CCTACAAGAGTA AAGTGCACGTGC TTTGGGACAGTG AGGAAAATAATG TTCACAAAGCCC ATACACTTTCAC CCTTTAGGAGAG	1598	miR-350	TTCACAAAGCCCATACACTTTCAC	1491

	TTG				
miR-351	CATGGCACCTCC ATTTCCCTGAGG AGCCCTTTGAGC CTGAGGTGAAAA AAAAACAGGTCA AGAGGCGCCTGG GAACTGGAG	1599	miR-351	TCCCTGAGGAGCCCTTTGAGCCTG	1493
miR-290	TCATCTTGCGGT TCTCAAACTATG GGGGCACTTTTT TTTTCTTTAAAA AGTGCCGCCAGG TTTTAGGGCCTG CCGGTTGAG	1600	miR-290	CTCAAACTATGGGGGCACTTTTT	1492
miR-291	CCGGTGTAGTAG CCATCAAAGTGG AGGCCCTCTCTT GGGCCCGAGCTA GAAAGTGCTTCC ACTTTGTGTGCC ACTGCATGGG	1601	miR-291	AAAGTGCTTCCACTTTGTGTGCC	1481
miR-291	CCGGTGTAGTAG CCATCAAAGTGG AGGCCCTCTCTT GGGCCCGAGCTA GAAAGTGCTTCC ACTTTGTGTGCC ACTGCATGGG	1601	miR-291	CATCAAAGTGGAGGCCCTCTCT	1482
miR-292	CAACCTGTGATA CTCAAACTGGGG GCTCTTTTGGGT TTTCTTTGGAAG AAAAGTGCCGCC AGGTTTTGAGTG TTACCGATTG	1602	miR-292	AAGTGCCGCCAGGTTTTGAGTGT	1483
miR-292	CAACCTGTGATA CTCAAACTGGGG GCTCTTTTGGGT TTTCTTTGGAAG AAAAGTGCCGCC AGGTTTTGAGTG TTACCGATTG	1602	miR-292	ACTCAAACTGGGGGCTCTTTTG	1484
miR-298	CCAGGCCTTCGG CAGAGGAGGGCT GTTCTTCCCTTG GGTTTTATGACT GGGAGGAACTAG CCTTCTCTCTGC TTAGGAGTGG	1603	miR-298	GGCAGAGGAGGGCTGTTCTTCC	1495
miR-300	GCTACTTGAAGA GAGGTTATCCTT TGTGTGTTTGCT TTACGCGAAATG AATATGCAAGGG CAAGCTCTCTTC GAGGAGC	1604	miR-300	TATGCAAGGGCAAGCTCTCTTC	1488
miR-333	CCCCGGTGGAAC CACGTGGTGTGC TAGTTACTTTTG GGCTGGAGAGAC	1605	miR-333	GTGGTGTGCTAGTTACTTTT	1611

	GGCTCAGGGGTT AAGAGCACAGAC TGCTCTTCCAGA GGTCCTGAGTT				
miR-336	ATGTGACCGTGC CTCTCACCCTTC CATATCTAGTCT CTGAGAAAAATG AAGACTGGATTC CATGAAGGGATG TGAGGCCTGGAA ACTGGAGCTTTA	1606	miR-336	TCACCCTTCCATATCTAGTCT	1612
miR-349	GAAGACTCTAGC ATGTAAGGTTGG GGGAGGGGGCTG TGTCTAGCAAGT CTTCTTCCCCCA CAGCCCTGCTGT CTTAACCTCTAG GTGTTCCGGCTC C	1607	miR-349	CAGCCCTGCTGTCTTAACCTCT	1613

A list of *Drosophila* pri-miRNAs and the mature miRNAs predicted to derive from them is shown in Table 63. "Pri-miRNA name" indicates the gene name for each of the pri-miRNAs, and "pri-miRNA sequence" indicates the sequence of the predicted primary miRNA transcript. Also given in table 63 are the name and sequence of the mature miRNA derived from the pri-miRNA. The sequences are written in the 5' to 3' direction and are represented in the DNA form. It is understood that a person having ordinary skill in the art would be able to convert the sequence of the targets to their RNA form by simply replacing the thymidine (T) with uracil (U) in the sequence.

Table 63

Drosophila pri-miRNA sequences and the corresponding mature miRNAs

Pri-miRNA name	Pri-miRNA sequence	SEQ ID NO	Mature miRNA name	Mature miRNA sequence	SEQ ID NO
mir-14	GGAGCGAGACGGGGACTCACT GTGCTTATTAAATAGTCAGTC TTTTTCTCTCTCCTATACAAA TTGCGGGC	1614	miR-14	TCAGTCTTTTTCTCTCTCCTA	1616
mir-bantam	AATGATTTGACTACGAAACCG GTTTTCGATTTGGTTTGACTG TTTTTCATACAAGTGAGATCA TTTTGAAAGCTGATTTTGTCA ATGAATA	1615	mir-Bantam	GTGAGATCATTTTGAAAGCTG	1617

Oligomeric compounds targeting or mimicking pri-miRNAs, pre-miRNAs, or miRNAs were given internal numerical identifiers (ISIS Numbers) and are shown in Tables 64, 65, and 66 respectively. The sequences are written in the 5' to 3' direction and are represented in the DNA

form. It is understood that a person having ordinary skill in the art would be able to convert the sequence of the targets to their RNA form by simply replacing the thymidine (T) with uracil (U) in the sequence.

Table 64 describes a series of oligomeric compounds designed and synthesized to target different regions of pri-miRNAs. These oligomeric compounds can be analyzed for their effect on miRNA, pre-miRNA or pri-miRNA levels by quantitative real-time PCR, or they can be used in other assays to investigate the role of miRNAs or miRNA downstream targets. In Table 64, "Pri-miRNA" indicates the particular pri-miRNA which contains the miRNA that the oligomeric compound was designed to target. All compounds listed in Table 64 have phosphorothioate internucleoside linkages. In some embodiments, chimeric oligonucleotides ("gapmers") are composed of a central "gap" region consisting of ten 2'-deoxynucleotides, which is flanked on both sides (5' and 3' directions) by five nucleotide "wings," wherein the wings are composed of 2'-methoxyethoxy (2'-MOE) nucleotides. These chimeric compounds are indicated in the "Chemistry" column as "5-10-5 MOE gapmer." In some embodiments, oligomeric compound consist of 2'-MOE ribonucleotides throughout, and these are indicated by "uniform MOE."

Table 64

Phosphorothioate oligomeric compounds targeting pri-miRNAs

ISIS #	SEQ ID NO	sequence	chemistry	Pri-miRNA
338615	442	AGAACAGCATGACGTAACCT	uniform MOE	mir-140, Human
338616	443	GCCCATCTGTGGCTTCACAG	uniform MOE	mir-30a, Human
338617	444	GAAGTCCGAGGCAGTAGGCA	uniform MOE	mir-30a, Human
338618	445	CTTCCTTACTATTGCTCACA	uniform MOE	mir-34, Human
338619	446	GCTAGATACAAAGATGGAAA	uniform MOE	mir-29b-1, Human
338620	447	CTAGACAATCACTATTTAAA	uniform MOE	mir-29b-2, Human
338621	448	GCAGCGCAGCTGGTCTCCCC	uniform MOE	mir-29b-2, Human
338622	449	TAATATATATTTCACTACGC	uniform MOE	mir-16-3, Human
338623	450	TGCTGTATCCCTGTCACACT	uniform MOE	mir-16-3, Human
338624	451	CAATTGCGCTACAGAACTGT	uniform MOE	mir-203, Human
338625	452	TCGATTTAGTTATCTAAAAA	uniform MOE	mir-7-1, Human
338626	453	CTGTAGAGGCATGGCCTGTG	uniform MOE	mir-7-1, Human
338627	454	TGACTATACGGATACCACAC	uniform MOE	mir-10b, Human
338628	455	GGAACAAGGCCAATTATTGC	uniform MOE	mir-128a, Human
338629	456	AGAAATGTAAACCTCTCAGA	uniform MOE	mir-128a, Human
338630	457	AGCTGTGAGGGAGAGAGAGA	uniform MOE	mir-153-1, Human
338631	458	CTGGAGTGAGAATACTAGCT	uniform MOE	mir-153-1, Human

338632	459	ACTGGGCTCATATTACTAGC	uniform MOE	mir-153-2, Human
338633	460	TTGGATTAAATAACAACCTA	uniform MOE	hypothetical miR-13/miR-190, Human
338634	461	CCCGGAGACAGGGCAAGACA	uniform MOE	hypothetical miR-13/miR-190, Human
338635	462	AAAGCGGAAACCAATCACTG	uniform MOE	chromosome 9 ORF3 containing mir-23b, mir-24-2 and mir-27b, Human
338636	463	GTCCCCATCTCACCTTCTCT	uniform MOE	chromosome 9 ORF3 containing mir-23b, mir-24-2 and mir-27b, Human
338637	464	TCAGAGCGGAGAGACACAAG	uniform MOE	mir-96, Human
338638	465	TAGATGCACATATCACTACC	uniform MOE	miR-17/mir-91, Human
338639	466	CTTGGCTTCCCGAGGCAGCT	uniform MOE	miR-17/mir-91, Human
338640	467	AGTTTGAAGTGTCACAGCGC	uniform MOE	mir-123/mir-126, Human
338641	468	GCGTTTTCGATGCGGTGCCG	uniform MOE	mir-123/mir-126, Human
338642	469	GAGACGCGGGGGCGGGGCGC	uniform MOE	mir-132, Human
338643	470	TACCTCCAGTTCCCACAGTA	uniform MOE	mir-132, Human
338644	471	TGTGTTTTCTGACTCAGTCA	uniform MOE	mir-108-1, Human
338645	472	AGAGCACCTGAGAGCAGCGC	uniform MOE	chromosome 9 ORF3 containing mir-23b, mir-24-2 and mir-27b, Human
338646	473	TCTTAAGTCACAAATCAGCA	uniform MOE	chromosome 9 ORF3 containing mir-23b, mir-24-2 and mir-27b, Human
338647	474	TCTCCACAGCGGGCAATGTC	uniform MOE	let-7i, Human
338648	475	GGCGCGCTGTCCGGGCGGGG	uniform MOE	mir-212, Human
338649	476	ACTGAGGGCGGCCCGGGCAG	uniform MOE	mir-212, Human
338650	477	GTCCTCTTGCCCAAGCAACA	uniform MOE	hypothetical miRNA-023, Human
338651	478	GAAGACCAATACACTCATAC	uniform MOE	mir-131-2/miR-9, Human
338652	479	CCGAGGGGCAACATCACTGC	uniform MOE	let-7b, Human
338653	480	TCCATAGCTTAGCAGGTCCA	uniform MOE	mir-1d-1, Human
338654	481	TTTGATAGTTTAGACACAAA	uniform MOE	mir-122a, Human
338655	482	GGGAAGGATTGCCTAGCAGT	uniform MOE	mir-122a, Human
338656	483	AGCTTTAGCTGGGTCAGGAC	uniform MOE	mir-22, Human
338657	484	TACCATACAGAAACACAGCA	uniform MOE	mir-92-1, Human
338658	485	TCACAATCCCCACCAAACTC	uniform MOE	mir-92-1, Human
338659	486	TCACTCCTAAAGGTTCAAGT	uniform MOE	hypothetical miRNA-30, Human
338660	487	CACCCTCCAGTGCTGTTAGT	uniform MOE	mir-142, Human
338661	488	CTGACTGAGACTGTTCACAG	uniform MOE	mir-183, Human
338662	489	CCTTTAGGGGTTGCCACACC	uniform MOE	glutamate receptor, ionotrophic, AMPA 3/ hypothetical miRNA-033,

				Human
338663	490	ACAGGTGAGCGGATGTTCTG	uniform MOE	mir-214, Human
338665	492	AGAGGGGAGACGAGAGCACT	uniform MOE	mir-192-1, Human
338666	493	TCACGTGGAGAGGAGTTAAA	uniform MOE	hypothetical miRNA-039, Human
338667	494	AGTGCTAATACTTCTTTCAT	uniform MOE	hypothetical miRNA-040, Human
338668	495	ACCTGTGTAACAGCCGTGTA	uniform MOE	hypothetical miRNA-041, Human
338669	496	TTATCGGAACTTCACAGAGA	uniform MOE	hypothetical miRNA-041, Human
338670	497	TCCCATAGCAGGGCAGAGCC	uniform MOE	let-7a-3, Human
338671	498	GGCACTTCATTGCTGCTGCC	uniform MOE	hypothetical miRNA-043, Human
338672	499	GGAGCCTTGCGCTCAGCATT	uniform MOE	hypothetical miRNA-043, Human
338673	500	ATGGTAATTTCATTTCAGGC	uniform MOE	hypothetical miRNA-044, Human
338674	501	GATTGCACATCCACACTGTC	uniform MOE	hypothetical miRNA-044, Human
338675	502	GCTGGCCTGATAGCCCTTCT	uniform MOE	mir-181a, Human
338676	503	GTTTTTTCAAATCCCAAACT	uniform MOE	mir-181a, Human
338677	504	CCCAGTGGTGGGTGTGACCC	uniform MOE	let-7a-1, Human
338678	505	CTGGTTGGGTATGAGACAGA	uniform MOE	mir-205, Human
338679	506	TTGATCCATATGCAACAAGG	uniform MOE	mir-103-1, Human
338680	507	GCCATTGGGACCTGCACAGC	uniform MOE	miR-26a-1, Human
338681	508	ATGGGTACCACCAGAACATG	uniform MOE	mir-33a, Human
338682	509	AGTTCAAAACTCAATCCCAA	uniform MOE	mir-196-2, Human
338683	510	GCCCTCGACGAAAACCGACT	uniform MOE	mir-196-2, Human
338684	511	TTGAACTCCATGCCACAAGG	uniform MOE	mir-107, Human
338685	512	AGGCCTATTCCTGTAGCAAA	uniform MOE	mir-106, Human
338686	513	GTAGATCTCAAAAAGCTACC	uniform MOE	mir-106, Human
338687	514	CTGAACAGGGTAAAATCACT	uniform MOE	let-7f-1, Human
338688	515	AGCAAGTCTACTCCTCAGGG	uniform MOE	let-7f-1, Human
338689	516	AATGGAGCCAAGGTGCTGCC	uniform MOE	hypothetical miRNA-055, Human
338690	517	TAGACAAAAACAGACTCTGA	uniform MOE	mir-29c, Human
338691	518	GCTAGTGACAGGTGCAGACA	uniform MOE	mir-130a, Human
338692	519	GGGCCTATCCAAAGTGACAG	uniform MOE	hypothetical miRNA-058, Human
338693	520	TACCTCTGCAGTATTCTACA	uniform MOE	hypothetical miRNA-058, Human
338694	521	TTTACTCATACCTCGCAACC	uniform MOE	mir-218-1, Human
338695	522	AATTGTATGACATTAAATCA	uniform MOE	mir-124a-2, Human
338696	523	CTTCAAGTGCAGCCGTAGGC	uniform MOE	mir-124a-2, Human
338697	524	TGCCATGAGATTCAACAGTC	uniform MOE	mir-21, Human
338698	525	ACATTGCTATCATAAGAGCT	uniform MOE	mir-16-1, Human

338699	526	TAATTTTAGAATCTTAACGC	uniform MOE	mir-16-1, Human
338700	527	AGTGTCTCATCGCAAACTTA	uniform MOE	mir-144, Human
338701	528	TGTTGCCTAACGAACACAGA	uniform MOE	mir-221, Human
338702	529	GCTGATTACGAAAGACAGGA	uniform MOE	mir-222, Human
338703	530	GCTTAGCTGTGTCTTACAGC	uniform MOE	mir-30d, Human
338704	531	GAGGATGTCTGTGAATAGCC	uniform MOE	mir-30d, Human
338705	532	CCACATATACATATATACGC	uniform MOE	mir-19b-2, Human
338706	533	AGGAAGCACACATTATCACA	uniform MOE	mir-19b-2, Human
338707	534	GACCTGCTACTCACTCTCGT	uniform MOE	mir-128b, Human
338708	535	GGTTGGCCGCAGACTCGTAC	uniform MOE	hypothetical miRNA 069/mir-219-2, Human
338709	536	GATGTCACTGAGGAAATCAC	uniform MOE	hypothetical miRNA-070, Human
338710	537	TCAGTTGGAGGCAAAAACCC	uniform MOE	LOC 114614/ hypothetical miRNA-071, Human
338711	538	GGTAGTGCAGCGCAGCTGGT	uniform MOE	mir-29b-2, Human
338712	539	CCGGCTATTGAGTTATGTAC	uniform MOE	mir-129-2, Human
338713	540	ACCTCTCAGGAAGACGGACT	uniform MOE	mir-133b, Human
338714	541	GAGCATGCAACACTCTGTGC	uniform MOE	hypothetical miRNA-075, Human
338715	542	CCTCCTTGTGGGCAAAATCC	uniform MOE	let-7d, Human
338716	543	CGCATCTTGACTGTAGCATG	uniform MOE	mir-15b, Human
338717	544	TCTAAGGGGTCACAGAAGGT	uniform MOE	mir-29a-1, Human
338718	545	GAAAATTATATTGACTCTGA	uniform MOE	mir-29a-1, Human
338719	546	GGTTCCTAATTAAACAACCC	uniform MOE	hypothetical miRNA-079, Human
338720	547	CCGAGGGTCTAACCCAGCCC	uniform MOE	mir-199b, Human
338721	548	GACTACTGTTGAGAGGAACA	uniform MOE	mir-129-1, Human
338722	549	TCTCCTTGGGTGTCCTCCTC	uniform MOE	let-7e, Human
338723	550	TGCTGACTGCTCGCCCTTGC	uniform MOE	hypothetical miRNA-083, Human
338724	551	ACTCCCAGGGTGTAACTCTA	uniform MOE	let7c-1, Human
338725	552	CATGAAGAAAGACTGTAGCC	uniform MOE	mir-204, Human
338726	553	GACAAGGTGGGAGCGAGTGG	uniform MOE	mir-145, Human
338727	554	TGCTCAGCCAGCCCCATTCT	uniform MOE	mir-124a-1, Human
338728	555	GCTTTTAGAACCACTGCCTC	uniform MOE	DiGeorge syndrome critical region gene 8/ hypothetical miRNA-088, Human
338729	556	GGAGTAGATGATGGTTAGCC	uniform MOE	mir-213/ mir-181a, Human
338730	557	ACTGATTCAAGAGCTTTGTA	uniform MOE	hypothetical miRNA-090, Human
338731	558	GTAGATAACTAAACACTACC	uniform MOE	mir-20, Human
338732	559	AATCCATTGAAGAGGCGATT	uniform MOE	mir-133a-1, Human
338733	560	GGTAAGAGGATGCGCTGCTC	uniform MOE	mir-138-2, Human

338734	561	GGCCTAATATCCCTACCCCA	uniform MOE	mir-98, Human
338735	562	GTGTTCAGAAACCCAGGCCC	uniform MOE	mir-196-1, Human
338736	563	TCCAGGATGCAAAAGCACGA	uniform MOE	mir-125b-1, Human
338737	564	TACAACGGCATTGTCCTGAA	uniform MOE	mir-199a-2, Human
338738	565	TTTCAGGCTCACCTCCCCAG	uniform MOE	hypothetical miRNA-099, Human
338739	566	AAAAATAATCTCTGCACAGG	uniform MOE	mir-181b, Human
338740	567	AGAATGAGTTGACATACCAA	uniform MOE	hypothetical miRNA-101, Human
338741	568	GCTTCACAATTAGACCATCC	uniform MOE	mir-141, Human
338742	569	AGACTCCACACCACTCATAC	uniform MOE	mir-131-1/miR-9, Human
338743	570	ATCCATTGGACAGTCGATTT	uniform MOE	mir-133a-2, Human
338744	571	GGCGGGCGGCTCTGAGGCGG	uniform MOE	hypothetical miRNA-105, Human
338745	572	CTCTTTAGGCCAGATCCTCA	uniform MOE	hypothetical miRNA-105, Human
338746	573	TAATGGTATGTGTGGTGATA	uniform MOE	hypothetical miRNA-107, Human
338747	574	ATTACTAAGTTGTTAGCTGT	uniform MOE	miR-1d-2, Human
338748	575	GATGCTAATCTACTTCACTA	uniform MOE	mir-18, Human
338749	576	TCAGCATGGTGCCCTCGCCC	uniform MOE	mir-220, Human
338750	577	TCCGCGGGGGCGGGGAGGCT	uniform MOE	hypothetical miRNA-111, Human
338751	578	AGACCACAGCCACTCTAATC	uniform MOE	mir-7-3, Human
338752	579	TCCGTTTCCATCGTTCCACC	uniform MOE	mir-218-2, Human
338753	580	GCCAGTGTACACAAACCAAC	uniform MOE	mir-24-2, Human
338754	581	AAGGCTTTTTGCTCAAGGGC	uniform MOE	chromosome 9 ORF3 containing mir-23b, mir-24-2 and mir-27b, Human
338755	582	TTGACCTGAATGCTACAAGG	uniform MOE	mir-103-2, Human
338756	583	TGCCCTGCTCAGAGCCCTAG	uniform MOE	mir-211, Human
338757	584	TCAATGTGATGGCACCACCA	uniform MOE	mir-101-3, Human
338758	585	ACCTCCCAGCCAATCCATGT	uniform MOE	mir-30b, Human
338759	586	TCCTGGATGATATCTACCTC	uniform MOE	hypothetical miRNA-120, Human
338760	587	TCTCCCTTGATGTAATTCTA	uniform MOE	let-7a-4, Human
338761	588	AGAGCGGAGTGTTTATGTCA	uniform MOE	mir-10a, Human
338762	589	TCATTCATTTGAAGGAAATA	uniform MOE	mir-19a, Human
338763	590	TCCAAGATGGGGTATGACCC	uniform MOE	let-7f-2, Human
338764	591	TTTTTAAACACACATTCGCG	uniform MOE	mir-15a-1, Human
338765	592	AGATGTGTTTCCATTCCACT	uniform MOE	mir-108-2, Human
338766	593	CCCCCTGCCGCTGGTACTCT	uniform MOE	mir-137, Human
338767	594	CGGCCGGAGCCATAGACTCG	uniform MOE	mir-219-1, Human
338768	595	CTTTCAGAGAGCCACAGCCT	uniform MOE	mir-148b, Human
338769	596	GCTTCCCAGCGGCCTATAGT	uniform MOE	mir-130b, Human

338770	597	CAGCAGAATATCACACAGCT	uniform MOE	mir-19b-1, Human
338771	598	TACAATTTGGGAGTCCTGAA	uniform MOE	mir-199b, Human
338772	599	GCCTCCTTCATATATTCTCA	uniform MOE	mir-204, Human
338773	600	CCCCATCTTAGCATCTAAGG	uniform MOE	mir-145, Human
338774	601	TTGTATGGACATTTAAATCA	uniform MOE	mir-124a-1, Human
338775	602	TTTGATTTTAATTCCAAACT	uniform MOE	mir-213/ mir-181a, Human
338776	603	CAAACGGTAAGATTTGCAGA	uniform MOE	hypothetical miRNA-090, Human
338777	604	GGATTTAAACGGTAAACATC	uniform MOE	mir-125b-1, Human
338778	605	CTCTAGCTCCCTCACCAGTG	uniform MOE	hypothetical miRNA-099, Human
338779	606	GCTTGTCCACACAGTTCAAC	uniform MOE	mir-181b, Human
338780	607	GCATTGTATGTTCATATGGG	uniform MOE	miR-1d-2, Human
338781	608	TGTCGTAGTACATCAGAACA	uniform MOE	mir-7-3, Human
338782	609	AGCCAGTGTGTAAAATGAGA	uniform MOE	chromosome 9 ORF3 containing mir-23b, mir-24-2 and mir-27b, Human
338783	610	TTCAGATATACAGCATCGGT	uniform MOE	mir-101-3, Human
338784	611	TGACCACAAAATTCCTTACA	uniform MOE	mir-10a, Human
338785	612	ACAACTACATTCTTCTTGTA	uniform MOE	mir-19a, Human
338786	613	TGCACCTTTTCAAAATCCAC	uniform MOE	mir-15a-1, Human
338787	614	AACGTAATCCGTATTATCCA	uniform MOE	mir-137, Human
338788	615	CGTGAGGGCTAGGAAATTGC	uniform MOE	mir-216, Human
338789	616	GCAACAGGCCTCAATATCTT	uniform MOE	mir-100-1, Human
338790	617	ACGAGGGGTCAGAGCAGCGC	uniform MOE	mir-187, Human
338791	618	GGCAGACGAAAGGCTGACAG	uniform MOE	hypothetical miRNA-137, Human
338792	619	CTGCACCATGTTCGGCTCCC	uniform MOE	hypothetical miRNA-138, Human
338793	620	GGGGCCCTCAGGGCTGGGGC	uniform MOE	mir-124a-3, Human
338794	621	CCGGTCCACTCTGTATCCAG	uniform MOE	mir-7-2, Human
338795	622	GCTGGGAAAGAGAGGGCAGA	uniform MOE	hypothetical miRNA-142, Human
338796	623	TCAGATTGCCAACATTGTGA	uniform MOE	hypothetical miRNA-143, Human
338797	624	CTGGGGAGGGGGTTAGCGTC	uniform MOE	collagen, type I, alpha 1/ hypothetical miRNA-144, Human
338798	625	TGGGTCTGGGGCAGCGCAGT	uniform MOE	mir-210, Human
338799	626	TTGAAGTAGCACAGTCATAC	uniform MOE	mir-215, Human
338800	627	TCTACCACATGGAGTGTCCA	uniform MOE	mir-223, Human
338801	628	AGTGCCGCTGCCGCGCCGTG	uniform MOE	mir-131-3/miR-9, Human
338802	629	ACACATTGAGAGCCTCCTGA	uniform MOE	mir-199a-1, Human
338803	630	GTCGCTCAGTGCTCTCTAGG	uniform MOE	mir-30c-1, Human
338804	631	AGGCTCCTCTGATGGAAGGT	uniform MOE	mir-101-1, Human

338805	632	GCTGTGACTTCTGATATTAT	uniform MOE	hypothetical miRNA-153, Human
338806	633	GACATCATGTGATTTGCTCA	uniform MOE	hypothetical miRNA-154, Human
338807	634	CACCCCAAGGCTGCAGGGCA	uniform MOE	mir-26b, Human
338808	635	TGTCAAGCCTGGTACCACCA	uniform MOE	hypothetical miRNA-156, Human
338809	636	CTGCTCCAGAGCCCGAGTCG	uniform MOE	mir-152, Human
338810	637	ACCCTCCGCTGGCTGTCCCC	uniform MOE	mir-135-1, Human
338811	638	TAGAGTGAATTTATCTTGGT	uniform MOE	non-coding RNA in rhabdomyosarcoma/ mir-135-2, Human
338812	639	TGGTGACTGATTCTTATCCA	uniform MOE	mir-217, Human
338813	640	CAATATGATTGGATAGAGGA	uniform MOE	hypothetical miRNA-161, Human
338814	641	TTTAAACACACATTCGCGCC	uniform MOE	mir-15a-1, Human
338815	642	ACCGGGTGGTATCATAGACC	uniform MOE	let-7g, Human
338816	643	TGCATACCTGTTCAGTTGGA	uniform MOE	hypothetical miRNA-164, Human
338817	644	GCCCGCCTCTCTCGGCCCCC	uniform MOE	sterol regulatory element-binding protein-1/ mir-33b, Human
338818	645	TCGCCCCCTCCCAGGCCTCT	uniform MOE	hypothetical miRNA-166, Human
338819	646	ACAACTGTAGAGTATGGTCA	uniform MOE	mir-16-1, Human
338820	647	GCTGACCATCAGTACTTTCC	uniform MOE	hypothetical miRNA 168-1/similar to ribosomal protein L5, Human
338821	648	TTATAGAACAGCCTCCAGTG	uniform MOE	forkhead box P2/hypothetical miRNA-169, Human
338822	649	TTCAGGCACTAGCAGTGGGT	uniform MOE	hypothetical miRNA-170, Human
338823	650	AGTACTGCGAGGTTAACCGC	uniform MOE	glutamate receptor, ionotropic, AMPA 2 / hypothetical miRNA-171, Human
338824	651	GGACCTTTAAGATGCAAAGT	uniform MOE	hypothetical miRNA-172, Human
338825	652	TTCATATTATCCACCCAGGT	uniform MOE	hypothetical miRNA-173, Human
338826	653	CGGATCCTGTTACCTCACCA	uniform MOE	mir-182, Human
338827	654	TGGTGCCTGCCACATCTTTG	uniform MOE	hypothetical miRNA-175, Human
338828	655	TGGGAGGCTGAATCAAGGAC	uniform MOE	hypothetical miRNA-176, Human
338829	656	TGACAACCAGGAAGCTTGTG	uniform MOE	hypothetical miRNA-177-1, Human
338830	657	GCCAGGCAGCGAGCTTTTGA	uniform MOE	hypothetical miRNA-178, Human
338831	658	CAGCCTGCCACCGCCGCTTT	uniform MOE	hypothetical miRNA-179, Human
338832	659	CTGCCCCCGTGGACCGAACA	uniform MOE	cezanne 2/ hypothetical miRNA-180, Human
338833	660	TCGTGCACCTGAGGAGTCTG	uniform MOE	hypothetical miRNA-181,

				Human
338834	661	CAAACGTGCTGTCTTCCTCC	uniform MOE	mir-148a, Human
338835	662	AAGGACTCAGCAGTGTTTCA	uniform MOE	tight junction protein 1 (zona occludens 1)/ hypothetical miRNA-183, Human
338836	663	TCCTCGGTGGCAGAGCTCAG	uniform MOE	mir-23a, Human
338837	664	AGACAATGAGTACACAGTTC	uniform MOE	hypothetical miRNA-185, Human
338838	665	CTGCAAGCACTGGTTCCCAT	uniform MOE	hypothetical miRNA-177-2/ hypothetical miRNA 186, Human
338839	666	TTGCCTGAGCTGCCCAAACT	uniform MOE	mir-181c, Human
338840	667	TCCATCACACTGTCCTATGA	uniform MOE	hypothetical miRNA-188, Human
338841	668	GAGGGATTGTATGAACATCT	uniform MOE	mir-216, Human
338842	669	GCTTGTGCGGACTAATACCA	uniform MOE	mir-100-1, Human
338843	670	GCAGGCTAAAAGAAATAAGC	uniform MOE	hypothetical miRNA-138, Human
338844	671	ATTGTATAGACATTAAATCA	uniform MOE	mir-124a-3, Human
338845	672	GTTGAGCGCAGTAAGACAAC	uniform MOE	mir-7-2, Human
338846	673	AGATGTTTCTGGCCTGCGAG	uniform MOE	hypothetical miRNA-142, Human
338847	674	GACAAACTCAGCTATATTGT	uniform MOE	mir-215, Human
338848	675	ACGGCTCTGTGGCACTCATA	uniform MOE	mir-131-3/miR-9, Human
338849	676	GCTTTCTTACTTTCCACAGC	uniform MOE	mir-30c-1, Human
338850	677	TACCTTTAGAATAGACAGCA	uniform MOE	mir-101-1, Human
338851	678	AGGCTGGACAGCACACAACC	uniform MOE	mir-26b, Human
338852	679	AGCAGGAGCCTTATCTCTCC	uniform MOE	hypothetical miRNA-156, Human
338853	680	ATGAGTGAGCAGTAGAATCA	uniform MOE	mir-135-1, Human
338854	681	TGAGACTTTATTACTATCAC	uniform MOE	non-coding RNA in rhabdomyosarcoma/ mir-135-2, Human
338855	682	TACTTTACTCCAAGGTTTTA	uniform MOE	mir-15a-1, Human
338856	683	GCACCCGCCTCACACACGTG	uniform MOE	sterol regulatory element-binding protein-1/ mir-33b, Human
338857	684	TTCCCGACCTGCCTTTACCT	uniform MOE	hypothetical miRNA-166, Human
338858	685	TCCTGTAATTATAGGCTAGC	uniform MOE	forkhead box P2/hypothetical miRNA-169, Human
338859	686	GGATCATATCAATAATACCA	uniform MOE	hypothetical miRNA-172, Human
338860	687	TGCTGAGACACACAATATGT	uniform MOE	hypothetical miRNA-176, Human
338861	688	TGTTTGTCTCCAAGAAACGT	uniform MOE	hypothetical miRNA-177-1, Human
338862	689	TGTCATGGACAGGATGAATA	uniform MOE	hypothetical miRNA-179, Human
338863	690	TCTATCATACTCAGAGTCGG	uniform MOE	mir-148a, Human

338864	691	TTGTGACAGGAAGCAAATCC	uniform MOE	mir-23a, Human
338865	692	CATCAGAGTCACCAACCCCA	uniform MOE	hypothetical miRNA-185, Human
338866	693	CAAGAGATGTCTCGTTTTGC	uniform MOE	hypothetical miRNA-177-2/ hypothetical miRNA 186, Human
340342	937	GACTGTTGAATCTCATGGCA	uniform MOE	miR-104 (Mourelatos), Human
340344	1656	GCATGAGCAGCCACCACAGG	uniform MOE	miR-105 (Mourelatos), Human
340346	1626	ACGACTTGGTGTGGACCCTG	uniform MOE	miR-27 (Mourelatos), Human
340347	849	TACTTTATATAGAACACAAG	uniform MOE	mir-92-2/ miR-92 (Mourelatos), Human
340349	1632	AGGTTGGGTAATCACACTAC	uniform MOE	miR-93 (Mourelatos), Human
340351	1621	AATGTAACGCATTTCAATTC	uniform MOE	miR-95 (Mourelatos), Human
340353	1694	TGTGCGGTCCACTTCACCAC	uniform MOE	miR-99 (Mourelatos), Human
340355	1671	GTCCAGCAATTGCCCAAGTC	uniform MOE	miR-25, Human
340357	1662	GGAAAGTCAGAAAGGTAACT	uniform MOE	miR-28, Human
340359	1635	CAGGTTCCCAGTTCAACAGC	uniform MOE	miR-31, Human
340361	1636	CATTGAGGCCGTGACAACAT	uniform MOE	miR-32, Human
340363	1656	GCATGAGCAGCCACCACAGG	5-10-5 MOE gapmer	miR-105 (Mourelatos), Human
340364	1626	ACGACTTGGTGTGGACCCTG	5-10-5 MOE gapmer	miR-27 (Mourelatos), Human
340366	1632	AGGTTGGGTAATCACACTAC	5-10-5 MOE gapmer	miR-93 (Mourelatos), Human
340367	1621	AATGTAACGCATTTCAATTC	5-10-5 MOE gapmer	miR-95 (Mourelatos), Human
340368	1694	TGTGCGGTCCACTTCACCAC	5-10-5 MOE gapmer	miR-99 (Mourelatos), Human
340369	1671	GTCCAGCAATTGCCCAAGTC	5-10-5 MOE gapmer	miR-25, Human
340370	1662	GGAAAGTCAGAAAGGTAACT	5-10-5 MOE gapmer	miR-28, Human
340371	1635	CAGGTTCCCAGTTCAACAGC	5-10-5 MOE gapmer	miR-31, Human
340372	1636	CATTGAGGCCGTGACAACAT	5-10-5 MOE gapmer	miR-32, Human
341817	1630	AGCCACCTTGAGCTCACAGC	uniform MOE	miR-30c-2, Human
341818	1695	TGTGTGCGGCGAAGGCCCCG	uniform MOE	miR-99b, Human
341819	1657	GCCAGGCTCCCAAGAACCTC	uniform MOE	MiR-125a, Human
341820	1653	GATGTTACTAAAATACCTCA	uniform MOE	MiR-125b-2, Human
341822	1679	TCCGATGATCTTTCTGAATC	uniform MOE	miR-127, Human
341825	1646	CTTAAAATAAAACCAGAAAG	uniform MOE	miR-186, Human
341826	1618	AAAATCACAGGAACCTATCT	uniform MOE	miR-198, Human
341827	1688	TGGAATGCTCTGGAGACAAC	uniform MOE	miR-191, Human
341828	1677	TCCATAGCAAAGTAATCCAT	uniform MOE	miR-206, Human
341829	1668	GGTAGCACGGAGAGGACCAC	uniform MOE	miR-94, Human

341830	1624	ACACTTACAGTCACAAAGCT	uniform MOE	miR-184, Human
341831	1654	GCAGACTCGCTTCCCTGTGC	uniform MOE	miR-195, Human
341832	1684	TGATCCGACACCCTCATCTC	uniform MOE	miR-193, Human
341833	1641	CCTGGGGAGGGGACCATCAG	uniform MOE	miR-185, Human
341834	1676	TCAGAAAGCTCACCCTCCAC	uniform MOE	miR-188, Human
341835	1648	GAGCTCTTACCTCCCACTGC	uniform MOE	miR-197, Human
341836	1686	TGGAAATTGGTACACAGTCC	uniform MOE	miR-194-1, Human
341837	1642	CGTGAGCATCAGGTATAACC	uniform MOE	miR-208, Human
341838	1687	TGGAACCAGTGGGCACTTCC	uniform MOE	miR-194-2, Human
341839	1638	CCAGCCTCCGAGCCACACTG	uniform MOE	miR-139, Human
341840	1628	AGACCTGACTCCATCCAATG	uniform MOE	miR-200b, Human
341841	1629	AGAGTCAAGCTGGGAAATCC	uniform MOE	miR-200a, Human
341843	1630	AGCCACCTTGAGCTCACAGC	5-10-5 MOE gapmer	miR-30c-2, Human
341844	1695	TGTGTGCGGCGAAGGCCCCG	5-10-5 MOE gapmer	miR-99b, Human
341845	1657	GCCAGGCTCCCAAGAACCTC	5-10-5 MOE gapmer	MiR-125a, Human
341846	1653	GATGTTACTAAAATACCTCA	5-10-5 MOE gapmer	MiR-125b-2, Human
341848	1679	TCCGATGATCTTTCTGAATC	5-10-5 MOE gapmer	miR-127, Human
341851	1646	CTTAAAATAAAACCAGAAAG	5-10-5 MOE gapmer	miR-186, Human
341852	1618	AAAATCACAGGAACCTATCT	5-10-5 MOE gapmer	miR-198, Human
341853	1688	TGGAATGCTCTGGAGACAAC	5-10-5 MOE gapmer	miR-191, Human
341854	1677	TCCATAGCAAAGTAATCCAT	5-10-5 MOE gapmer	miR-206, Human
341855	1668	GGTAGCACGGAGAGGACCAC	5-10-5 MOE gapmer	miR-94, Human
341856	1624	ACACTTACAGTCACAAAGCT	5-10-5 MOE gapmer	miR-184, Human
341857	1654	GCAGACTCGCTTCCCTGTGC	5-10-5 MOE gapmer	miR-195, Human
341858	1684	TGATCCGACACCCTCATCTC	5-10-5 MOE gapmer	miR-193, Human
341859	1641	CCTGGGGAGGGGACCATCAG	5-10-5 MOE gapmer	miR-185, Human
341860	1676	TCAGAAAGCTCACCCTCCAC	5-10-5 MOE gapmer	miR-188, Human
341861	1648	GAGCTCTTACCTCCCACTGC	5-10-5 MOE gapmer	miR-197, Human
341862	1686	TGGAAATTGGTACACAGTCC	5-10-5 MOE gapmer	miR-194-1, Human
341863	1642	CGTGAGCATCAGGTATAACC	5-10-5 MOE gapmer	miR-208, Human
341864	1687	TGGAACCAGTGGGCACTTCC	5-10-5 MOE gapmer	miR-194-2, Human
341865	1638	CCAGCCTCCGAGCCACACTG	5-10-5 MOE gapmer	miR-139, Human
341866	1628	AGACCTGACTCCATCCAATG	5-10-5 MOE gapmer	miR-200b, Human

341867	1629	AGAGTCAAGCTGGGAAATCC	5-10-5 MOE gapmer	miR-200a, Human
344731	1619	AACGGTTTATGACAAACATT	uniform MOE	mir-240* (Kosik), Human
344732	1665	GGGCTGTATGCACTTTCTCC	uniform MOE	mir-232* (Kosik), Human
344733	1667	GGGTCTCCAGCTTTACACCA	uniform MOE	mir-227* (Kosik)/mir-226* (Kosik), Human
344734	1649	GAGTCGCCTGAGTCATCACT	uniform MOE	mir-244* (Kosik), Human
344735	1658	GCCATAAATAAAGCGAACGC	uniform MOE	mir-224* (Kosik), Human
344736	1678	TCCATTAACCATGTCCCTCA	uniform MOE	mir-248* (Kosik), Human
344737	1619	AACGGTTTATGACAAACATT	5-10-5 MOE gapmer	mir-240* (Kosik), Human
344738	1665	GGGCTGTATGCACTTTCTCC	5-10-5 MOE gapmer	mir-232* (Kosik), Human
344739	1667	GGGTCTCCAGCTTTACACCA	5-10-5 MOE gapmer	mir-227* (Kosik)/mir-226* (Kosik), Human
344740	1649	GAGTCGCCTGAGTCATCACT	5-10-5 MOE gapmer	mir-244* (Kosik), Human
344741	1658	GCCATAAATAAAGCGAACGC	5-10-5 MOE gapmer	mir-224* (Kosik), Human
344742	1678	TCCATTAACCATGTCCCTCA	5-10-5 MOE gapmer	mir-248* (Kosik), Human
346787	1689	TGGCTTCCATAGTCTGGTGT	uniform MOE	miR-147 (Sanger), Human
346788	1623	ACAATGCACAATCATCTACT	uniform MOE	miR-224 (Sanger), Human
346789	1669	GGTGAACACAGTGCATGCCC	uniform MOE	miR-134 (Sanger), Human
346790	1682	TCTGACACTGACACAACCCA	uniform MOE	miR-146 (Sanger), Human
346791	1631	AGGGTCTGAGCCCAGCACTG	uniform MOE	miR-150 (Sanger), Human
346792	1637	CCAAGAGACGTTTCATTTTG	uniform MOE	hypothetical miRNA-177-3, Human
346793	1683	TCTGATTGGCAACGGCCTGA	uniform MOE	mir-138-3, Human
346794	1627	ACTGTCCATCTTAGTTCAGA	uniform MOE	mir-138-4, Human
346795	1634	AGTTGATTCAGACTCAAACC	uniform MOE	mir-181b-2, Human
346796	1655	GCATAAGCAGCCACCACAGG	uniform MOE	miR-105-2, Human
346797	1691	TGTATGATATCTACCTCAGG	uniform MOE	hypothetical miRNA-120-2, Human
346798	1689	TGGCTTCCATAGTCTGGTGT	5-10-5 MOE gapmer	miR-147 (Sanger), Human
346799	1623	ACAATGCACAATCATCTACT	5-10-5 MOE gapmer	miR-224 (Sanger), Human
346800	1669	GGTGAACACAGTGCATGCCC	5-10-5 MOE gapmer	miR-134 (Sanger), Human
346801	1682	TCTGACACTGACACAACCCA	5-10-5 MOE gapmer	miR-146 (Sanger), Human
346802	1631	AGGGTCTGAGCCCAGCACTG	5-10-5 MOE gapmer	miR-150 (Sanger), Human
346803	1637	CCAAGAGACGTTTCATTTTG	5-10-5 MOE gapmer	hypothetical miRNA-177-3, Human
346804	1683	TCTGATTGGCAACGGCCTGA	5-10-5 MOE gapmer	mir-138-3, Human
346805	1627	ACTGTCCATCTTAGTTCAGA	5-10-5 MOE gapmer	mir-138-4, Human
346806	1634	AGTTGATTCAGACTCAAACC	5-10-5 MOE gapmer	mir-181b-2, Human

346807	1655	GCATAAGCAGCCACCACAGG	5-10-5 MOE gapmer	miR-105-2, Human
346808	1691	TGTATGATATCTACCTCAGG	5-10-5 MOE gapmer	hypothetical miRNA-120-2, Human
348225	1620	AAGAGAAGGCGGAGGGGAGC	5-10-5 MOE gapmer	miR-320, Human
348226	1643	CTCGAACCCACAATCCCTGG	5-10-5 MOE gapmer	miR-321-1, Human
354006	1650	GAGTTTGGGACAGCAATCAC	5-10-5 MOE gapmer	mir-135b (Ruvkun), Human
354007	1633	AGTAGGGGATGAGACATACT	5-10-5 MOE gapmer	mir-151* (Ruvkun), Human
354008	1639	CCCACAAACGACATATGACA	5-10-5 MOE gapmer	mir-340 (Ruvkun), Human
354009	1664	GGCCTGGTTTGATCTGGGAT	5-10-5 MOE gapmer	mir-331 (Ruvkun), Human
354010	1647	GAGACTCCCAACCGCACCCA	5-10-5 MOE gapmer	miR-200c (RFAM-Human)
354011	1700	TTGTAACCACCACAGTACAA	5-10-5 MOE gapmer	miR-34b (RFAM-Human)
354012	1663	GGAGGACAGGGAGAGCGGCC	5-10-5 MOE gapmer	mir-339-1 (RFAM-Human)
354013	1675	TCACAGGCAGGCACACGTGA	5-10-5 MOE gapmer	mir-339-1 (RFAM-Human)
354014	1698	TTCAGAGCTACAGCATCGGT	5-10-5 MOE gapmer	mir-101-3, Mouse
354015	1670	GTAGAACTCAAAAAGCTACC	5-10-5 MOE gapmer	mir-106, Mouse
354016	1673	TAGATGCACACATCACTACC	5-10-5 MOE gapmer	miR-17/mir-91, Mouse
354017	1690	TGTACAATTTGGGAGTCCTG	5-10-5 MOE gapmer	mir-199b, Human
354018	1644	CTCTTTAGACCAGATCCACA	5-10-5 MOE gapmer	hypothetical miRNA-105, Mouse
354019	1640	CCTCACTCAGAGGCCTAGGC	5-10-5 MOE gapmer	mir-211, Mouse
354020	1666	GGGGATTAAGTCTTATCCAG	5-10-5 MOE gapmer	mir-217, Mouse
354021	1622	ACAATGCACAAACCATCTAC	5-10-5 MOE gapmer	miR-224 (Sanger), Mouse
354022	1693	TGTCATATCATATCAGAACA	5-10-5 MOE gapmer	mir-7-3, Mouse
354023	1672	TAGATGACGACACACTACCT	5-10-5 MOE gapmer	mir-20, Rat
354024	1692	TGTCACAAACACTTACTGGA	5-10-5 MOE gapmer	mir-325 (Ruvkun), Human
354025	1625	ACGAATTATGTCACAAACAC	5-10-5 MOE gapmer	mir-325 (Ruvkun), Mouse
354026	1651	GATCTGAGCACCACCCGCCT	5-10-5 MOE gapmer	mir-326 (Ruvkun), Human
354027	1652	GATCTGAGCATAACCCGCCT	5-10-5 MOE gapmer	mir-326 (Ruvkun), Mouse
354028	1697	TGTTTCGTCCTCATTAAAGA	5-10-5 MOE gapmer	mir-329-1 (Ruvkun), Human
354029	1699	TTCTCATCAAAGAAACAGAG	5-10-5 MOE gapmer	mir-329-1 (Ruvkun), Mouse
354030	1696	TGTTTCGTCCTCAATAAAGA	5-10-5 MOE gapmer	mir-329-2 (Ruvkun), Human
354031	1681	TCGGTTGATCTTGCAGAGCC	5-10-5 MOE gapmer	mir-330 (Ruvkun), Human

354032	1685	TGCTCGTTGGATCTTGAAGA	5-10-5 MOE gapmer	mir-330 (Ruvkun), Mouse
354033	1661	GCTGGATAACTGTGCATCAA	5-10-5 MOE gapmer	mir-337 (Ruvkun), Human
354034	1645	CTGAATGGCTGTGCAATCAA	5-10-5 MOE gapmer	mir-337 (Ruvkun), Mouse
354035	1659	GCCCACCAGCCATCACGAGC	5-10-5 MOE gapmer	mir-345 (Ruvkun), Human
354036	1660	GCCCAGTAGCCACCACAAGC	5-10-5 MOE gapmer	mir-345 (Ruvkun), Mouse
354037	1680	TCCTTCAGAGCAACAGAGAG	5-10-5 MOE gapmer	mir-346 (Ruvkun), Human
354038	1674	TAGTAGGGAGGAGACATACT	5-10-5 MOE gapmer	mir-151* (Ruvkun), Mouse
354039	1701	TTGTCAGCACCGCACTACAA	5-10-5 MOE gapmer	miR-34b (RFAM-Mouse)

In accordance with the present invention, a further series of oligomeric compounds were designed and synthesized to target different regions of miRNAs. These oligomeric compounds can be analyzed for their effect on miRNA, pre-miRNA or pri-miRNA levels by quantitative real-time PCR, or they can be used in other assays to investigate the role of miRNAs or miRNA downstream targets. The compounds are shown in Table 65, where "pri-miRNA" indicates the particular pri-miRNA which contains the miRNA that the oligomeric compound was designed to target. Oligomeric compounds having phosphorothioate internucleoside linkages are indicated by "PS" in the "Chemistry" column of Table 65, whereas compounds having phosphodiester internucleoside linkages are indicated by "PO." In some embodiments, chimeric oligonucleotides ("gapmers") are composed of a central "gap" region consisting of ten 2'-deoxynucleotides, which is flanked on both sides (5' and 3' directions) by nucleotide "wings" two to ten nucleotides in length. The wings are composed of 2'-methoxyethoxy (2'-MOE) ribonucleotides. In some embodiments, chimeric oligonucleotides are of the "open end" type wherein the "gap" segment is located at either the 3' or the 5' terminus of the oligomeric compound. Chimeric oligonucleotides of this type are also known in the art and are indicated in Table 65 as "hemimers." For example, "PO/6MOE-10deoxy hemimer," describes a chimeric oligomeric compound consisting of six 2'-MOE ribonucleotides at the 5'-terminus, followed by ten deoxyribonucleotides on the 3'-terminal end, with a phosphodiester backbone throughout the hemimer.

Table 65

Oligomeric compounds targeting miRNAs

ISIS #	SEQ ID NO	sequence	Chemistry	Pri-miRNA
340343	1780	ACAGGAGTCTGAGCATTTGA	PS/MOE	miR-105 (Mourelatos)

340345	1882	GGAACTTAGCCACTGTGAA	PS/MOE	miR-27 (Mourelatos)
340350	855	TGCTCAATAAATACCCGTTGAA	PS/MOE	miR-95 (Mourelatos)
340352	1821	CACAAGATCGGATCTACGGGTT	PS/MOE	miR-99 (Mourelatos)
340354	1903	TCAGACCGAGACAAGTGCAATG	PS/MOE	miR-25 (Tuschl)
340356	1853	CTCAATAGACTGTGAGCTCCTT	PS/MOE	miR-28 (Tuschl)
340358	1825	CAGCTATGCCAGCATCTTGCC	PS/MOE	miR-31 (Tuschl)
340360	1865	GCAACTTAGTAATGTGCAATA	PS/MOE	miR-32 (Tuschl)
340924	298	ACAAATTCGGTTCTACAGGGTA	PS/MOE 5-10-7 gapmer	mir-10b
340925	307	GTGGTAATCCCTGGCAATGTGAT	PS/MOE 5-10-8 gapmer	mir-23b
340928	322	ACTCACCGACAGCGTTGAATGTT	PS/MOE 5-10-8 gapmer	mir-181a
340929	331	AACCGATTTCAAATGGTGCTAG	PS/MOE 5-10-7 gapmer	mir-29c
340930	342	GCAAGCCCAGACCGCAAAAAG	PS/MOE 5-10-6 gapmer	mir-129
340931	346	AACCGATTTCAGATGGTGCTAG	PS/MOE 5-10-7 gapmer	mir-29a
340932	349	AACCATACAACCTACTACCTCA	PS/MOE 5-10-7 gapmer	let-7c
340933	352	GGTACAATCAACGGTCGATGGT	PS/MOE 5-10-7 gapmer	mir-213
340934	356	AACAATACAACTTACTACCTCA	PS/MOE 5-10-7 gapmer	mir-98
340935	373	GCCCTTTCATCATTGCACTG	PS/MOE 5-10-5 gapmer	mir-130b
340936	385	ACTGTACAAACTACTACCTCA	PS/MOE 5-10-6 gapmer	let-7g
341785	854	GGAGTGAAGACACGGAGCCAGA	PS/MOE	miR-149
341786	1845	CGCAAGGTCGGTTCTACGGGTG	PS/MOE	miR-99b
341787	852	CACAGGTTAAAGGGTCTCAGGGA	PS/MOE	miR-125a
341788	853	AGCCAAGCTCAGACGGATCCGA	PS/MOE	miR-127
341789	1909	TCCATCATCAAAACAAATGGAGT	PS/MOE	miR-136
341790	1843	CGAAGGCAACACGGATAACCTA	PS/MOE	miR-154
341791	1880	GCTTCCAGTCGAGGATGTTTACA	PS/MOE	miR-30a-s
341792	1911	TCCGTGGTTCTACCCTGTGGTA	PS/MOE	miR-140-as
341793	1836	CCATAAAGTAGGAAACACTACA	PS/MOE	miR-142-as
341794	1761	AACAGGTAGTCTGAACACTGGG	PS/MOE	miR-199-s
341795	1762	AACCAATGTGCAGACTACTGTA	PS/MOE	miR-199-as
341796	1904	TCATACAGCTAGATAACCAAAGA	PS/MOE	miR-9
341797	1773	ACAAGTGCCTTCACTGCAGT	PS/MOE	miR-17
341798	1871	GCATTATTACTCACGGTACGA	PS/MOE	miR-126a
341799	1787	ACCTAATATATCAAACATATCA	PS/MOE	miR-190
341800	1766	AAGCCCAAAAGGAGAATTCTTTG	PS/MOE	miR-186
341801	1839	CCTATCTCCCCTCTGGACC	PS/MOE	miR-198a

341802	1806	AGCTGCTTTTGGGATTCCGTTG	PS/MOE	miR-191c
341803	760	CCACACACTTCCTTACATTCCA	PS/MOE	miR-206d
341804	761	ATCTGCACTGTCAGCACTTT	PS/MOE	miR-94
341805	762	ACCCTTATCAGTTCTCCGTCCA	PS/MOE	miR-184
341806	763	GCCAATATTTCTGTGCTGCTA	PS/MOE	miR-195
341807	764	CTGGGACTTTGTAGGCCAGTT	PS/MOE	miR-193
341808	1861	GAACTGCCTTTCTCTCCA	PS/MOE	miR-185
341809	1786	ACCCTCCACCATGCAAGGGATG	PS/MOE	miR-188
341810	1879	GCTGGGTGGAGAAGGTGGTGAA	PS/MOE	miR-197a
341811	1906	TCCACATGGAGTTGCTGTTACA	PS/MOE	miR-194
341812	1771	ACAAGCTTTTTGCTCGTCTTAT	PS/MOE	miR-208
341814	1887	GTCATCATTACCAGGCAGTATTA	PS/MOE	miR-200b
341815	1831	CATCGTTACCAGACAGTGTTA	PS/MOE	miR-200a
342946	1897	TAGGAGAGAGAAAAAGACTGA	PS/MOE	miR-14
342947	1827	CAGCTTTCAAAATGATCTCAC	PS/MOE	miR-Bantam
343875	321	AACTATACAACCTACTACCTCA	PO/MOE	let-7a
344267	1769	ACAAATTCGGATCTACAGGGTA	PS/MOE	miR-10 (Tuschl)
344268	1774	ACACAAATTCGGTTCTACAGGG	PS/MOE	miR-10b (Tuschl)
344269	1890	TAACCGATTTCAAATGGTGCTA	PS/MOE	miR-29c (Tuschl)
344270	1867	GCACGAACAGCACTTTG	PS/MOE	miR-93 (Tuschl)
344271	1770	ACAAGATCGGATCTACGGGT	PS/MOE	miR-99a (Tuschl)
344272	1816	CAAACACCATTGTCACACTCCA	PS/MOE	miR-122a,b (Tuschl)
344273	1920	TGTCAATTCATAGGTCAG	PS/MOE	miR-192 (Tuschl)
344274	1832	CCAACAACATGAAACTACCTA	PS/MOE	miR-196 (Tuschl)
344275	1912	TCTAGTGGTCCTAAACATTTCA	PS/MOE	miR-203 (Tuschl)
344276	1828	CAGGCATAGGATGACAAAGGGAA	PS/MOE	miR-204 (Tuschl)
344277	1767	AATACATACTTCTTTACATTCCA	PS/MOE	miR-1d (Tuschl)
344278	1769	ACAAATTCGGATCTACAGGGTA	PS/MOE 5-10-7 gapmer	miR-10 (Tuschl)
344279	1774	ACACAAATTCGGTTCTACAGGG	PS/MOE 5-10-7 gapmer	miR-10b (Tuschl)
344280	1890	TAACCGATTTCAAATGGTGCTA	PS/MOE 5-10-7 gapmer	miR-29c (Tuschl)
344281	1867	GCACGAACAGCACTTTG	PS/MOE 5-10-2 gapmer	miR-93 (Tuschl)
344282	1770	ACAAGATCGGATCTACGGGT	PS/MOE 5-10-5 gapmer	miR-99a (Tuschl)
344283	1816	CAAACACCATTGTCACACTCCA	PS/MOE 5-10-7 gapmer	miR-122a,b (Tuschl)
344284	1920	TGTCAATTCATAGGTCAG	PS/MOE 5-10-3 gapmer	miR-192 (Tuschl)
344285	1832	CCAACAACATGAAACTACCTA	PS/MOE 5-10-6	miR-196

			gapmer	(Tuschl)
344286	1912	TCTAGTGGTCCTAAACATTTCA	PS/MOE 5-10-7 gapmer	miR-203 (Tuschl)
344287	1828	CAGGCATAGGATGACAAAGGGAA	PS/MOE 5-10-8 gapmer	miR-204 (Tuschl)
344288	1767	AATACATACTTCTTTACATTCCA	PS/MOE 5-10-8 gapmer	miR-1d (Tuschl)
344336	1918	TGGCATTCACCGCGTGCCTTA	PS/MOE	mir-124a (Kosik)
344337	1754	AAAGAGACCGGTTCACTGTGA	PS/MOE	mir-128 (Kosik)
344338	1812	ATGCCCTTTTAACATTGCACTG	PS/MOE	mir-130 (Kosik)
344339	1854	CTCACCGACAGCGTTGAATGTT	PS/MOE	mir-178 (Kosik)
344340	1921	TGTCCGTGGTTCTACCCTGTGGTA	PS/MOE	mir-239* (Kosik)
344341	1823	CACATGGTTAGATCAAGCACAA	PS/MOE	mir-253* (Kosik)
344342	1814	ATGCTTTTTGGGGTAAGGGCTT	PS/MOE	mir-129as/mir-258* (Kosik)
344343	1811	ATGCCCTTTCATCATTGCACTG	PS/MOE	mir-266* (Kosik)
344344	1918	TGGCATTCACCGCGTGCCTTA	PS/MOE 5-10-6 gapmer	mir-124a (Kosik)
344345	1754	AAAGAGACCGGTTCACTGTGA	PS/MOE 5-10-6 gapmer	mir-128 (Kosik)
344346	1812	ATGCCCTTTTAACATTGCACTG	PS/MOE 5-10-7 gapmer	mir-130 (Kosik)
344347	1854	CTCACCGACAGCGTTGAATGTT	PS/MOE 5-10-7 gapmer	mir-178 (Kosik)
344348	1921	TGTCCGTGGTTCTACCCTGTGGTA	PS/MOE 5-10-9 gapmer	mir-239* (Kosik)
344349	1823	CACATGGTTAGATCAAGCACAA	PS/MOE 5-10-7 gapmer	mir-253* (Kosik)
344350	1814	ATGCTTTTTGGGGTAAGGGCTT	PS/MOE 5-10-7 gapmer	mir-129as/mir-258* (Kosik)
344351	1811	ATGCCCTTTCATCATTGCACTG	PS/MOE 5-10-7 gapmer	mir-266* (Kosik)
344611	1785	ACATTTTTCGTTATTGCTCTTGA	PS/MOE	mir-240* (Kosik)
344612	1790	ACGGAAGGGCAGAGAGGGCCAG	PS/MOE	mir-232* (Kosik)
344613	1775	ACACCAATGCCCTAGGGGATGCG	PS/MOE	mir-227* (Kosik)
344614	1834	CCAGCAGCACCTGGGGCAGT	PS/MOE	mir-226* (Kosik)
344615	1900	TCAACAAAATCACTGATGCTGGA	PS/MOE	mir-244* (Kosik)
344616	1800	AGAGGTCGACCGTGTAATGTGC	PS/MOE	mir-224* (Kosik)
344617	1862	GACGGGTGCGATTTCTGTGTGAGA	PS/MOE	mir-248* (Kosik)
344618	1785	ACATTTTTCGTTATTGCTCTTGA	PS/MOE 5-10-8 gapmer	mir-240* (Kosik)
344619	1790	ACGGAAGGGCAGAGAGGGCCAG	PS/MOE 5-10-7 gapmer	mir-232* (Kosik)
344620	1775	ACACCAATGCCCTAGGGGATGCG	PS/MOE 5-10-8 gapmer	mir-227* (Kosik)
344621	1834	CCAGCAGCACCTGGGGCAGT	PS/MOE 5-10-5 gapmer	mir-226* (Kosik)

344622	1900	TCAACAAAATCACTGATGCTGGA	PS/MOE 5-10-8 gapmer	mir-244* (Kosik)
344623	1800	AGAGGTCGACCGTGTAATGTGC	PS/MOE 5-10-7 gapmer	mir-224* (Kosik)
344624	1862	GACGGGTGCGATTTCTGTGTGAGA	PS/MOE 5-10-9 gapmer	mir-248* (Kosik)
345344	291	CTACCATAGGGTAAAACCACT	PS/MOE 5-10-6 gapmer	mir-140
345345	292	GCTGCAAACATCCGACTGAAAG	PS/MOE 5-10-7 gapmer	mir-30a
345346	293	ACAACCAGCTAAGACACTGCCA	PS/MOE 5-10-7 gapmer	mir-34
345347	294	AACACTGATTTCAAATGGTGCTA	PS/MOE 5-10-8 gapmer	mir-29b
345348	295	CGCCAATATTTACGTGCTGCTA	PS/MOE 5-10-7 gapmer	mir-16
345350	297	AACAAAATCACTAGTCTTCCA	PS/MOE 5-10-6 gapmer	mir-7
345351	299	AAAAGAGACCGGTTCACTGTGA	PS/MOE 5-10-7 gapmer	mir-128a
345352	300	TCACTTTTGTGACTATGCAA	PS/MOE 5-10-5 gapmer	mir-153
345353	301	CAGAACTTAGCCACTGTGAA	PS/MOE 5-10-5 gapmer	mir-27b
345354	302	GCAAAAATGTGCTAGTGCCAAA	PS/MOE 5-10-7 gapmer	mir-96
345355	303	ACTACCTGCACTGTAAGCACTTTG	PS/MOE 5-10-9 gapmer	mir-17as/mir-91
345356	304	CGCGTACCAAAAGTAATAATG	PS/MOE 5-10-6 gapmer	mir-123/mir-126as
345357	305	GCGACCATGGCTGTAGACTGTTA	PS/MOE 5-10-8 gapmer	mir-132
345358	306	AATGCCCCTAAAAATCCTTAT	PS/MOE 5-10-6 gapmer	mir-108
345359	308	AGCACAAACTACTACCTCA	PS/MOE 5-10-4 gapmer	let-7i
345360	309	GGCCGTGACTGGAGACTGTTA	PS/MOE 5-10-6 gapmer	mir-212
345361	311	AACCACACAACCTACTACCTCA	PS/MOE 5-10-7 gapmer	let-7b
345362	312	ATACATACTTCTTTACATTCCA	PS/MOE 5-10-7 gapmer	mir-1d
345363	313	ACAAACACCATTGTCACACTCCA	PS/MOE 5-10-8 gapmer	mir-122a
345364	314	ACAGTTCTTCAACTGGCAGCTT	PS/MOE 5-10-7 gapmer	mir-22
345365	315	ACAGGCCGGGACAAGTGCAATA	PS/MOE 5-10-7 gapmer	mir-92
345366	316	GTAGTGCTTTCTACTTTATG	PS/MOE 5-10-5 gapmer	mir-142
345367	317	CAGTGAATTCTACCAGTGCCATA	PS/MOE 5-10-8 gapmer	mir-183
345368	318	CTGCCTGTCTGTGCCTGCTGT	PS/MOE 5-10-6 gapmer	mir-214
345369	320	GGCTGTCAATTCATAGGTCAG	PS/MOE 5-10-6 gapmer	mir-192
345370	321	AACTATACAACCTACTACCTCA	PS/MOE 5-10-7 gapmer	let-7a
345371	323	CAGACTCCGGTGGAATGAAGGA	PS/MOE 5-10-7 gapmer	mir-205

345372	324	TCATAGCCCTGTACAATGCTGCT	PS/MOE 5-10-8 gapmer	mir-103
345373	325	AGCCTATCCTGGATTACTTGAA	PS/MOE 5-10-7 gapmer	mir-26a
345374	326	CAATGCAACTACAATGCAC	PS/MOE 5-10-4 gapmer	mir-33a
345375	327	CCCAACAACATGAAACTACCTA	PS/MOE 5-10-7 gapmer	mir-196
345376	328	TGATAGCCCTGTACAATGCTGCT	PS/MOE 5-10-8 gapmer	mir-107
345377	329	GCTACCTGCACTGTAAGCACTTTT	PS/MOE 5-10-9 gapmer	mir-106
345378	330	AACTATACAATCTACTACCTCA	PS/MOE 5-10-7 gapmer	let-7f
345379	332	GCCCTTTTAACATTGCACTG	PS/MOE 5-10-5 gapmer	mir-130a
345380	333	ACATGGTTAGATCAAGCACAA	PS/MOE 5-10-6 gapmer	mir-218
345381	334	TGGCATTCACCGCGTGCCTTAA	PS/MOE 5-10-7 gapmer	mir-124a
345382	335	TCAACATCAGTCTGATAAGCTA	PS/MOE 5-10-7 gapmer	mir-21
345383	336	CTAGTACATCATCTATACTGTA	PS/MOE 5-10-7 gapmer	mir-144
345384	337	GAAACCCAGCAGACAATGTAGCT	PS/MOE 5-10-8 gapmer	mir-221
345385	338	GAGACCCAGTAGCCAGATGTAGCT	PS/MOE 5-10-9 gapmer	mir-222
345386	339	CTTCCAGTCGGGGATGTTTACA	PS/MOE 5-10-7 gapmer	mir-30d
345387	340	TCAGTTTTGCATGGATTTGCACA	PS/MOE 5-10-8 gapmer	mir-19b
345388	341	GAAAGAGACCGGTTCACTGTGA	PS/MOE 5-10-7 gapmer	mir-128b
345389	343	TAGCTGGTTGAAGGGGACCAA	PS/MOE 5-10-6 gapmer	mir-133b
345390	344	ACTATGCAACCTACTACCTCT	PS/MOE 5-10-6 gapmer	let-7d
345391	345	TGTAAACCATGATGTGCTGCTA	PS/MOE 5-10-7 gapmer	mir-15b
345392	347	GAACAGATAGTCTAAACACTGGG	PS/MOE 5-10-8 gapmer	mir-199b
345393	348	ACTATACAACCTCCTACCTCA	PS/MOE 5-10-6 gapmer	let-7e
345394	350	AGGCATAGGATGACAAAGGGAA	PS/MOE 5-10-7 gapmer	mir-204
345395	351	AAGGGATTCCTGGGAAAACTGGAC	PS/MOE 5-10-9 gapmer	mir-145
345396	353	CTACCTGCACTATAAGCACTTTA	PS/MOE 5-10-8 gapmer	mir-20
345397	354	ACAGCTGGTTGAAGGGGACCAA	PS/MOE 5-10-7 gapmer	mir-133a
345398	355	GATTCACAACACCAGCT	PS/MOE 5-10-2 gapmer	mir-138
345399	357	TCACAAGTTAGGGTCTCAGGGA	PS/MOE 5-10-7 gapmer	mir-125b
345400	358	GAACAGGTAGTCTGAACACTGGG	PS/MOE 5-10-8 gapmer	mir-199a
345401	359	AACCCACCGACAGCAATGAATGTT	PS/MOE 5-10-9 gapmer	mir-181b

345402	360	CCATCTTTACCAGACAGTGTT	PS/MOE 5-10-6 gapmer	mir-141
345403	361	TATCTGCACTAGATGCACCTTA	PS/MOE 5-10-7 gapmer	mir-18
345404	362	AAAGTGTCAGATACGGTGTGG	PS/MOE 5-10-6 gapmer	mir-220
345405	363	CTGTTCCTGCTGAACTGAGCCA	PS/MOE 5-10-7 gapmer	mir-24
345406	364	AGGCGAAGGATGACAAAGGGAA	PS/MOE 5-10-7 gapmer	mir-211
345407	365	TCAGTTATCACAGTACTGTA	PS/MOE 5-10-5 gapmer	mir-101
345408	366	GCTGAGTGTAGGATGTTTACA	PS/MOE 5-10-6 gapmer	mir-30b
345409	367	CACAAATTCGGATCTACAGGGTA	PS/MOE 5-10-8 gapmer	mir-10a
345410	368	TCAGTTTTGCATAGATTTGCACA	PS/MOE 5-10-8 gapmer	mir-19a
345411	369	CACAAACCATTATGTGCTGCTA	PS/MOE 5-10-7 gapmer	mir-15a
345412	370	CTACGCGTATTCTTAAGCAATA	PS/MOE 5-10-7 gapmer	mir-137
345413	371	AGAATTGCGTTTGGACAATCA	PS/MOE 5-10-6 gapmer	mir-219
345414	372	ACAAAGTTCTGTGATGCACTGA	PS/MOE 5-10-7 gapmer	mir-148b
345415	374	CACAGTTGCCAGCTGAGATTA	PS/MOE 5-10-6 gapmer	mir-216
345416	375	CACAAGTTCGGATCTACGGGTT	PS/MOE 5-10-7 gapmer	mir-100
345417	376	CCGGCTGCAACACAAGACACGA	PS/MOE 5-10-7 gapmer	mir-187
345418	377	CAGCCGCTGTCACACGCACAG	PS/MOE 5-10-6 gapmer	mir-210
345419	378	GTCTGTCAATTCATAGGTCAT	PS/MOE 5-10-6 gapmer	mir-215
345420	379	GGGGTATTTGACAAACTGACA	PS/MOE 5-10-6 gapmer	mir-223
345421	380	GCTGAGAGTGTAGGATGTTTACA	PS/MOE 5-10-8 gapmer	mir-30c
345422	381	AACCTATCCTGAATTACTTGAA	PS/MOE 5-10-7 gapmer	mir-26b
345423	382	CCAAGTTCTGTCATGCACTGA	PS/MOE 5-10-6 gapmer	mir-152
345424	383	ATCACATAGGAATAAAAAGCCATA	PS/MOE 5-10-9 gapmer	mir-135
345425	384	ATCCAATCAGTTCCTGATGCAGTA	PS/MOE 5-10-9 gapmer	mir-217
345426	386	CAATGCAACAGCAATGCAC	PS/MOE 5-10-4 gapmer	mir-33b
345427	387	TGTGAGTTCTACCATTGCCAAA	PS/MOE 5-10-7 gapmer	mir-182
345428	388	ACAAAGTTCTGTAGTGCACTGA	PS/MOE 5-10-7 gapmer	mir-148a
345429	389	GGAAATCCCTGGCAATGTGAT	PS/MOE 5-10-6 gapmer	mir-23a
345430	390	ACTCACCGACAGGTTGAATGTT	PS/MOE 5-10-7 gapmer	mir-181c
345431	391	ACTGTAGGAATATGTTTGATA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-013

345432	392	ATTAAAAAGTCCTCTTGCCCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-023
345433	393	GCTGCCGTATATGTGATGTCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-030
345434	394	GGTAGGTGGAATACTATAACA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-033
345435	395	TAAACATCACTGCAAGTCTTA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-039
345436	396	TTGTAAGCAGTTTTGTTGACA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-040
345437	397	TCACAGAGAAAACAACTGGTA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-041
345438	398	CCTCTCAAAGATTTCCTGTCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-043
345439	399	TGTCAGATAAACAGAGTGGAA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-044
345440	400	GAGAATCAATAGGGCATGCAA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-055
345441	401	AAGAACATTAAGCATCTGACA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-058
345442	402	AATCTCTGCAGGCAAATGTGA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-070
345443	403	AAACCCCTATCACGATTAGCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-071
345444	404	GCCCCATTAATATTTTAACCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-075
345445	405	CCCAATATCAAACATATCA	PS/MOE 5-10-4 gapmer	hypothetical miRNA-079
345446	406	TATGATAGCTTCCCCATGTAA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-083
345447	407	CCTCAATTATTGGAAATCACA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-088
345448	408	ATTGATGCGCCATTTGGCCTA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-090
345449	409	CTGTGACTTCTCTATCTGCCT	PS/MOE 5-10-6 gapmer	hypothetical miRNA-099
345450	410	AAACTTGTTAATTGACTGTCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-101
345451	411	AAAGAAGTATATGCATAGGAA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-105
345452	412	GATAAAGCCAATAAACTGTCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-107
345453	413	TCCGAGTCGGAGGAGGAGGAA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-111
345454	414	ATCATTACTGGATTGCTGTAA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-120
345455	415	CAAAAATTATCAGCCAGTTTA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-137
345456	416	AATCTCATTTTCATACTTGCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-138
345457	417	AGAAGGTGGGGAGCAGCGTCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-142
345458	418	CAAAATTGCAAGCAAATTGCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-143
345459	419	TCCACAAAGCTGAACATGTCT	PS/MOE 5-10-6 gapmer	hypothetical miRNA-144
345460	420	TATTATCAGCATCTGCTTGCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-153
345461	421	AATAACACACATCCACTTTAA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-154

345462	422	AAGAAGGAAGGAGGGAAAGCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-156
345463	423	ATGACTACAAGTTTATGGCCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-161
345464	424	CAAAACATAAAAATCCTTGCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-164
345465	425	TTACAGGTGCTGCAACTGGAA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-166
345466	426	AGCAGGTGAAGGCACCTGGCT	PS/MOE 5-10-6 gapmer	hypothetical miRNA-168
345467	427	TATGAAATGCCAGAGCTGCCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-169
345468	428	CCAAGTGTTAGAGCAAGATCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-170
345469	429	AACGATAAAACATACTTGTCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-171
345470	430	AGTAACTTCTTGCAGTTGGA	PS/MOE 5-10-5 gapmer	hypothetical miRNA-172
345471	431	AGCCTCCTTCTTCTCGTACTA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-173
345472	432	ACCTCAGGTGGTTGAAGGAGA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-175
345473	433	ATATGTCATATCAAACTCCTA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-176
345474	434	GTGAGAGTAGCATGTTTGTCT	PS/MOE 5-10-6 gapmer	hypothetical miRNA-177
345475	435	TGAAGGTTCGGAGATAGGCTA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-178
345476	436	AATTGGACAAAGTGCCTTTCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-179
345477	437	ACCGAACAAAGTCTGACAGGA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-180
345478	438	AACTACTTCCAGAGCAGGTGA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-181
345479	439	GTAAGCGCAGCTCCACAGGCT	PS/MOE 5-10-6 gapmer	hypothetical miRNA-183
345480	440	GAGCTGCTCAGCTGGCCATCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-185
345481	441	TACTTTTCATTCCCCTCACCA	PS/MOE 5-10-6 gapmer	hypothetical miRNA-188
345482	236	TAGCTTATCAGACTGATGTTGA	PS/MOE 5-10-7 gapmer	miR-104 (Mourelatos)
345483	1780	ACAGGAGTCTGAGCATTTGA	PS/MOE 5-10-5 gapmer	miR-105 (Mourelatos)
345484	1882	GGAACTTAGCCACTGTGAA	PS/MOE 5-10-4 gapmer	miR-27 (Mourelatos)
345485	848	CTACCTGCACGAACAGCACTTT	PS/MOE 5-10-7 gapmer	miR-93 (Mourelatos)
345486	855	TGCTCAATAAATACCCGTTGAA	PS/MOE 5-10-7 gapmer	miR-95 (Mourelatos)
345487	1821	CACAAGATCGGATCTACGGGTT	PS/MOE 5-10-7 gapmer	miR-99 (Mourelatos)
345488	1903	TCAGACCGAGACAAGTGCAATG	PS/MOE 5-10-7 gapmer	miR-25 (Tuschl)
345489	1853	CTCAATAGACTGTGAGCTCCTT	PS/MOE 5-10-7 gapmer	miR-28 (Tuschl)
345490	1825	CAGCTATGCCAGCATCTTGCC	PS/MOE 5-10-6 gapmer	miR-31 (Tuschl)
345491	1865	GCAACTTAGTAATGTGCAATA	PS/MOE 5-10-6 gapmer	miR-32 (Tuschl)

345492	1897	TAGGAGAGAGAAAAAGACTGA	PS/MOE 5-10-6 gapmer	miR-14
345493	854	GGAGTGAAGACACGGAGCCAGA	PS/MOE 5-10-7 gapmer	miR-149
345494	1845	CGCAAGGTCGGTTCTACGGGTG	PS/MOE 5-10-7 gapmer	miR-99b
345495	852	CACAGGTTAAAGGGTCTCAGGGA	PS/MOE 5-10-8 gapmer	miR-125a
345496	853	AGCCAAGCTCAGACGGATCCGA	PS/MOE 5-10-7 gapmer	miR-127
345497	1909	TCCATCATCAAAACAAATGGAGT	PS/MOE 5-10-8 gapmer	miR-136
345498	1843	CGAAGGCAACACGGATAACCTA	PS/MOE 5-10-7 gapmer	miR-154
345499	1880	GCTTCCAGTCGAGGATGTTTACA	PS/MOE 5-10-8 gapmer	miR-30a-s
345500	1911	TCCGTGGTTCTACCCTGTGGTA	PS/MOE 5-10-7 gapmer	miR-140-as
345501	1836	CCATAAAGTAGGAAACACTACA	PS/MOE 5-10-7 gapmer	miR-142-as
345502	1761	AACAGGTAGTCTGAACACTGGG	PS/MOE 5-10-7 gapmer	miR-199-s
345503	1762	AACCAATGTGCAGACTACTGTA	PS/MOE 5-10-7 gapmer	miR-199-as
345504	1904	TCATACAGCTAGATAACCAAAGA	PS/MOE 5-10-8 gapmer	miR-9
345505	1773	ACAAGTGCCTTCACTGCAGT	PS/MOE 5-10-5 gapmer	miR-17
345506	1871	GCATTATTACTCACGGTACGA	PS/MOE 5-10-6 gapmer	miR-126a
345507	1787	ACCTAATATATCAAACATATCA	PS/MOE 5-10-7 gapmer	miR-190
345508	1766	AAGCCCAAAAGGAGAATTCTTTG	PS/MOE 5-10-8 gapmer	miR-186
345509	1839	CCTATCTCCCCTCTGGACC	PS/MOE 5-10-4 gapmer	miR-198a
345510	1806	AGCTGCTTTTGGGATTCCGTTG	PS/MOE 5-10-7 gapmer	miR-191c
345511	760	CCACACACTTCCTTACATTCCA	PS/MOE 5-10-7 gapmer	miR-206d
345512	761	ATCTGCACTGTCAGCACTTT	PS/MOE 5-10-5 gapmer	miR-94
345513	762	ACCCTTATCAGTTCTCCGTCCA	PS/MOE 5-10-7 gapmer	miR-184
345514	763	GCCAATATTTCTGTGCTGCTA	PS/MOE 5-10-6 gapmer	miR-195
345515	764	CTGGGACTTTGTAGGCCAGTT	PS/MOE 5-10-6 gapmer	miR-193
345516	1861	GAACTGCCTTTCTCTCCA	PS/MOE 5-10-3 gapmer	miR-185
345517	1786	ACCCTCCACCATGCAAGGGATG	PS/MOE 5-10-7 gapmer	miR-188
345518	1879	GCTGGGTGGAGAAGGTGGTGAA	PS/MOE 5-10-7 gapmer	miR-197a
345519	1906	TCCACATGGAGTTGCTGTTACA	PS/MOE 5-10-7 gapmer	miR-194
345520	1771	ACAAGCTTTTTGCTCGTCTTAT	PS/MOE 5-10-7 gapmer	miR-208
345521	938	AGACACGTGCACTGTAGA	PS/MOE 5-10-3 gapmer	miR-139

345522	1887	GTCATCATTACCAGGCAGTATTA	PS/MOE 5-10-8 gapmer	miR-200b
345523	1831	CATCGTTACCAGACAGTGTTA	PS/MOE 5-10-6 gapmer	miR-200a
345524	1827	CAGCTTTCAAAATGATCTCAC	PS/MOE 5-10-6 gapmer	miR-Bantam
345922	1783	ACAGTGCTTCATCTCA	PO/6MOE-10deoxy hemimer	mir-143
345923	1848	CTACAGTGCTTCATCTC	PO/6MOE-11deoxy hemimer	mir-143
345924	1876	GCTACAGTGCTTCATCT	PO/6MOE-11deoxy hemimer	mir-143
345925	1875	GCTACAGTGCTTCATC	PO/6MOE-10deoxy hemimer	mir-143
345926	1803	AGCTACAGTGCTTCAT	PO/6MOE-10deoxy hemimer	mir-143
345927	1863	GAGCTACAGTGCTTCA	PO/6MOE-10deoxy hemimer	mir-143
345928	1916	TGAGCTACAGTGCTTC	PO/6MOE-10deoxy hemimer	mir-143
346685	1884	GGCGGAACTTAGCCACTGTGAA	PS/MOE	miR-27a (RFAM-Human)
346686	1857	CTTCAGTTATCACAGTACTGTA	PS/MOE	miR-101 (RFAM-Human)
346687	1802	AGCAAGCCCAGACCGCAAAAAG	PS/MOE	miR-129b (RFAM-Human)
346688	1898	TAGTTGGCAAGTCTAGAACCA	PS/MOE	miR-182* (RFAM-Human)
346689	1830	CATCATTACCAGGCAGTATTAGAG	PS/MOE	miR-200a (RFAM-Human)
346690	1792	ACTGATATCAGCTCAGTAGGCAC	PS/MOE	miR-189 (RFAM-Human)
346691	1870	GCAGAAGCATTTCCACACAC	PS/MOE	miR-147 (RFAM-Human)
346692	1889	TAAACGGAACCACTAGTGACTTG	PS/MOE	miR-224 (RFAM-Human)
346693	1838	CCCTCTGGTCAACCAGTCACA	PS/MOE	miR-134 (RFAM-Human)
346694	1763	AACCCATGGAATTCAGTTCTCA	PS/MOE	miR-146 (RFAM-Human)
346695	1824	CACTGGTACAAGGGTTGGGAGA	PS/MOE	miR-150 (RFAM-Human)
346696	1893	TACCTGCACTATAAGCACTTTA	PS/MOE	mir-20
346697	1788	ACCTATCCTGAATTACTTGAA	PS/MOE	mir-26b
346698	1793	ACTGATTTCAAATGGTGCTA	PS/MOE	mir-29b
346699	1847	CGGCTGCAACACAAGACACGA	PS/MOE	miR-187 (RFAM-Human)
346700	1844	CGACCATGGCTGTAGACTGTTA	PS/MOE	miR-132 (RFAM-Human)
346701	1901	TCACATAGGAATAAAAAGCCATA	PS/MOE	miR-135 (RFAM-Human)
346702	1893	TACCTGCACTATAAGCACTTTA	PS/MOE 5-10-7 gapmer	mir-20
346703	1788	ACCTATCCTGAATTACTTGAA	PS/MOE 5-10-6 gapmer	mir-26b
346704	1884	GGCGGAACTTAGCCACTGTGAA	PS/MOE 5-10-7 gapmer	miR-27a (RFAM-Human)
346705	1857	CTTCAGTTATCACAGTACTGTA	PS/MOE 5-10-7 gapmer	miR-101 (RFAM-Human)

346706	1793	ACTGATTTCAAATGGTGCTA	PS/MOE 5-10-5 gapmer	mir-29b
346707	1847	CGGCTGCAACACAAGACACGA	PS/MOE 5-10-6 gapmer	miR-187 (RFAM-Human)
346708	1844	CGACCATGGCTGTAGACTGTTA	PS/MOE 5-10-7 gapmer	miR-132 (RFAM-Human)
346709	1901	TCACATAGGAATAAAAAGCCATA	PS/MOE 5-10-8 gapmer	miR-135 (RFAM-Human)
346710	1802	AGCAAGCCCAGACCGCAAAAAG	PS/MOE 5-10-7 gapmer	miR-129b (RFAM-Human)
346711	1898	TAGTTGGCAAGTCTAGAACCA	PS/MOE 5-10-6 gapmer	miR-182* (RFAM-Human)
346712	1830	CATCATTACCAGGCAGTATTAGAG	PS/MOE 5-10-9 gapmer	miR-200a (RFAM-Human)
346713	1792	ACTGATATCAGCTCAGTAGGCAC	PS/MOE 5-10-8 gapmer	miR-189 (RFAM-Human)
346714	1870	GCAGAAGCATTTCCACACAC	PS/MOE 5-10-5 gapmer	miR-147 (RFAM-Human)
346715	1889	TAAACGGAACCACTAGTGACTTG	PS/MOE 5-10-8 gapmer	miR-224 (RFAM-Human)
346716	1838	CCCTCTGGTCAACCAGTCACA	PS/MOE 5-10-6 gapmer	miR-134 (RFAM-Human)
346717	1763	AACCCATGGAATTCAGTTCTCA	PS/MOE 5-10-7 gapmer	miR-146 (RFAM-Human)
346718	1824	CACTGGTACAAGGGTTGGGAGA	PS/MOE 5-10-7 gapmer	miR-150 (RFAM-Human)
346905	1907	TCCAGTCAAGGATGTTTACA	PS/MOE	miR-30e (RFAM-M. musculus)
346906	1781	ACAGGATTGAGGGGGGGCCCT	PS/MOE	miR-296 (RFAM-M. musculus)
346907	1815	ATGTATGTGGGACGGTAAACCA	PS/MOE	miR-299 (RFAM-M. musculus)
346908	1881	GCTTTGACAATACTATTGCACTG	PS/MOE	miR-301 (RFAM-M. musculus)
346909	1902	TCACCAAAACATGGAAGCACTTA	PS/MOE	miR-302 (RFAM-M. musculus)
346910	1866	GCAATCAGCTAACTACACTGCCT	PS/MOE	miR-34a (RFAM-M. musculus)
346911	1776	ACACTGATTTCAAATGGTGCTA	PS/MOE	miR-29b (RFAM-M. musculus)
346912	1851	CTAGTGGTCCTAAACATTTCA	PS/MOE	miR-203 (RFAM-M. musculus)
346913	1795	AGAAAGGCAGCAGGTCGTATAG	PS/MOE	let-7d* (RFAM-M. musculus)
346914	1810	ATCTGCACTGTCAGCACTTTA	PS/MOE	miR-106b (RFAM-M. musculus)
346915	1784	ACATCGTTACCAGACAGTGTTA	PS/MOE	miR-200a (RFAM-M. musculus)
346916	1874	GCGGAACTTAGCCACTGTGAA	PS/MOE	miR-27a (RFAM-M. musculus)
346917	1826	CAGCTATGCCAGCATCTTGCCT	PS/MOE	miR-31 (RFAM-M. musculus)
346918	1829	CAGGCCGGGACAAGTGCAATA	PS/MOE	miR-92 (RFAM-M. musculus)
346919	1849	CTACCTGCACGAACAGCACTTTG	PS/MOE	miR-93 (RFAM-M. musculus)
346920	1801	AGCAAAAATGTGCTAGTGCCAAA	PS/MOE	miR-96 (RFAM-M. musculus)
346921	1759	AACAACCAGCTAAGACACTGCCA	PS/MOE	miR-172 (RFAM-M. musculus)

346922	1907	TCCAGTCAAGGATGTTTACA	PS/MOE 5-10-5 gapmer	miR-30e (RFAM-M. musculus)
346923	1781	ACAGGATTGAGGGGGGGCCCT	PS/MOE 5-10-6 gapmer	miR-296 (RFAM-M. musculus)
346924	1815	ATGTATGTGGGACGGTAAACCA	PS/MOE 5-10-7 gapmer	miR-299 (RFAM-M. musculus)
346925	1881	GCTTTGACAATACTATTGCACTG	PS/MOE 5-10-8 gapmer	miR-301 (RFAM-M. musculus)
346926	1902	TCACCAAAACATGGAAGCACTTA	PS/MOE 5-10-8 gapmer	miR-302 (RFAM-M. musculus)
346927	1866	GCAATCAGCTAACTACACTGCCT	PS/MOE 5-10-8 gapmer	miR-34a (RFAM-M. musculus)
346928	1776	ACACTGATTTCAAATGGTGCTA	PS/MOE 5-10-7 gapmer	miR-29b (RFAM-M. musculus)
346929	1851	CTAGTGGTCCTAAACATTTCA	PS/MOE 5-10-6 gapmer	miR-203 (RFAM-M. musculus)
346930	1795	AGAAAGGCAGCAGGTCGTATAG	PS/MOE 5-10-7 gapmer	let-7d* (RFAM-M. musculus)
346931	1810	ATCTGCACTGTCAGCACTTTA	PS/MOE 5-10-6 gapmer	miR-106b (RFAM-M. musculus)
346932	1784	ACATCGTTACCAGACAGTGTTA	PS/MOE 5-10-7 gapmer	miR-200a (RFAM-M. musculus)
346933	1874	GCGGAACTTAGCCACTGTGAA	PS/MOE 5-10-6 gapmer	miR-27a (RFAM-M. musculus)
346934	1826	CAGCTATGCCAGCATCTTGCCT	PS/MOE 5-10-7 gapmer	miR-31 (RFAM-M. musculus)
346935	1829	CAGGCCGGGACAAGTGCAATA	PS/MOE 5-10-6 gapmer	miR-92 (RFAM-M. musculus)
346936	1849	CTACCTGCACGAACAGCACTTTG	PS/MOE 5-10-8 gapmer	miR-93 (RFAM-M. musculus)
346937	1801	AGCAAAAATGTGCTAGTGCCAAA	PS/MOE 5-10-8 gapmer	miR-96 (RFAM-M. musculus)
346938	1759	AACAACCAGCTAAGACACTGCCA	PS/MOE 5-10-8 gapmer	miR-172 (RFAM-M. musculus)
347385	1782	ACAGTGCTTCATCTC	PO/6MOE-9deoxy hemimer	mir-143
347386	1848	CTACAGTGCTTCATCTC	PO/6MOE-11deoxy hemimer	mir-143
347387	1876	GCTACAGTGCTTCATCT	PO/6MOE-11deoxy hemimer	mir-143
347388	1875	GCTACAGTGCTTCATC	PO/6MOE-10deoxy hemimer	mir-143
347389	1803	AGCTACAGTGCTTCAT	PO/6MOE-10deoxy hemimer	mir-143
347390	1863	GAGCTACAGTGCTTCA	PO/6MOE-10deoxy hemimer	mir-143
347391	1916	TGAGCTACAGTGCTTC	PO/6MOE-10deoxy hemimer	mir-143
347452	1783	ACAGTGCTTCATCTCA	PO/6MOE-10deoxy hemimer	mir-143
347453	1783	ACAGTGCTTCATCTCA	PO/6MOE-10deoxy hemimer	mir-143
348116	1922	TTCGCCCTCTCAACCCAGCTTTT	PS/MOE	miR-320
348117	1860	GAACCCACAATCCCTGGCTTA	PS/MOE	miR-321-1
348118	1886	GTAAACCATGATGTGCTGCTA	PS/MOE	miR-15b (Michael et al)
348119	1908	TCCATAAAGTAGGAAACACTACA	PS/MOE	miR-142as (Michael et al)
348120	1864	GAGCTACAGTGCTTCATCTCA	PS/MOE	miR-143

				(Michael et al)
348121	1883	GGATTCCTGGGAAAACTGGAC	PS/MOE	miR-145 (Michael et al)
348122	1905	TCATCATTACCAGGCAGTATTA	PS/MOE	miR-200b (Michael et al)
348123	1791	ACTATACAATCTACTACCTCA	PS/MOE	let-7f (Michael et al)
348124	1820	CACAAATTCGGTTCTACAGGGTA	PS/MOE	miR-10b (Michael et al)
348125	1878	GCTGGATGCAAACCTGCAAAACT	PS/MOE	miR-19b (Michael et al)
348126	1873	GCCTATCCTGGATTACTTGAA	PS/MOE	miR-26a (Michael et al)
348127	1869	GCAGAACTTAGCCACTGTGAA	PS/MOE	miR-27* (Michael et al)
348128	1858	CTTCCAGTCAAGGATGTTTACA	PS/MOE	miR-97 (Michael et al)
348129	1855	CTGGCTGTCAATTCATAGGTCA	PS/MOE	miR-192 (Michael et al)
348130	1922	TTCGCCCTCTCAACCCAGCTTTT	PS/MOE 5-10-8 gapmer	miR-320
348131	1860	GAACCCACAATCCCTGGCTTA	PS/MOE 5-10-6 gapmer	miR-321-1
348132	1886	GTAAACCATGATGTGCTGCTA	PS/MOE 5-10-6 gapmer	miR-15b (Michael et al)
348133	1908	TCCATAAAGTAGGAAACACTACA	PS/MOE 5-10-8 gapmer	miR-142as (Michael et al)
348134	1864	GAGCTACAGTGCTTCATCTCA	PS/MOE 5-10-6 gapmer	miR-143 (Michael et al)
348135	1883	GGATTCCTGGGAAAACTGGAC	PS/MOE 5-10-6 gapmer	miR-145 (Michael et al)
348136	1905	TCATCATTACCAGGCAGTATTA	PS/MOE 5-10-7 gapmer	miR-200b (Michael et al)
348137	1791	ACTATACAATCTACTACCTCA	PS/MOE 5-10-6 gapmer	let-7f (Michael et al)
348138	1820	CACAAATTCGGTTCTACAGGGTA	PS/MOE 5-10-8 gapmer	miR-10b (Michael et al)
348139	1878	GCTGGATGCAAACCTGCAAAACT	PS/MOE 5-10-8 gapmer	miR-19b (Michael et al)
348140	1873	GCCTATCCTGGATTACTTGAA	PS/MOE 5-10-6 gapmer	miR-26a (Michael et al)
348141	1869	GCAGAACTTAGCCACTGTGAA	PS/MOE 5-10-6 gapmer	miR-27* (Michael et al)
348142	1858	CTTCCAGTCAAGGATGTTTACA	PS/MOE 5-10-7 gapmer	miR-97 (Michael et al)
348143	1855	CTGGCTGTCAATTCATAGGTCA	PS/MOE 5-10-7 gapmer	miR-192 (Michael et al)
354040	1751	AAACCACACAACCTACTACCTCA	PS/MOE	let-7b-Ruvkun
354041	1752	AAACCATACAACCTACTACCTCA	PS/MOE	let-7c-Ruvkun
354042	1764	AACTATGCAACCTACTACCTCT	PS/MOE	let-7d-Ruvkun
354043	1765	AACTGTACAAACTACTACCTCA	PS/MOE	let-7gL-Ruvkun
354044	1760	AACAGCACAAACTACTACCTCA	PS/MOE	let-7i-Ruvkun
354045	1924	TTGGCATTCACCGCGTGCCTTAA	PS/MOE	mir-124a-Ruvkun
354046	1833	CCAAGCTCAGACGGATCCGA	PS/MOE	mir-127-Ruvkun
354047	1896	TACTTTCGGTTATCTAGCTTTA	PS/MOE	mir-131-Ruvkun

354048	1846	CGGCCTGATTCACAACACCAGCT	PS/MOE	mir-138-Ruvkun
354049	1768	ACAAACCATTATGTGCTGCTA	PS/MOE	mir-15-Ruvkun
354050	1789	ACGCCAATATTTACGTGCTGCTA	PS/MOE	mir-16-Ruvkun
354051	1852	CTATCTGCACTAGATGCACCTTA	PS/MOE	mir-18-Ruvkun
354052	1779	ACAGCTGCTTTTGGGATTCCGTTG	PS/MOE	mir-191-Ruvkun
354053	1891	TAACCGATTTCAGATGGTGCTA	PS/MOE	mir-29a-Ruvkun
354054	1813	ATGCTTTGACAATACTATTGCACTG	PS/MOE	mir-301-Ruvkun
354055	1805	AGCTGAGTGTAGGATGTTTACA	PS/MOE	mir-30b-Ruvkun
354056	1804	AGCTGAGAGTGTAGGATGTTTACA	PS/MOE	mir-30c-Ruvkun
354057	1807	AGCTTCCAGTCGGGGATGTTTACA	PS/MOE	mir-30d-Ruvkun
354058	1835	CCAGCAGCACCTGGGGCAGTGG	PS/MOE	mir-324-3p-Ruvkun
354059	1899	TATGGCAGACTGTGATTTGTTG	PS/MOE	mir-7-1*-Ruvkun
354060	1850	CTACCTGCACTGTAAGCACTTTG	PS/MOE	mir-91-Ruvkun
354061	1822	CACATAGGAATGAAAAGCCATA	PS/MOE	mir-135b (Ruvkun)
354062	1895	TACTAGACTGTGAGCTCCTCGA	PS/MOE	mir-151* (Ruvkun)
354063	1885	GGCTATAAAGTAACTGAGACGGA	PS/MOE	mir-340 (Ruvkun)
354064	1923	TTCTAGGATAGGCCCAGGGGC	PS/MOE	mir-331 (Ruvkun)
354065	1892	TACATACTTCTTTACATTCCA	PS/MOE	miR-1 (RFAM)
354066	1817	CAATCAGCTAACTACACTGCCT	PS/MOE	miR-34c (RFAM)
354067	1837	CCCCTATCACGATTAGCATTAA	PS/MOE	miR-155 (RFAM)
354068	1910	TCCATCATTACCCGGCAGTATT	PS/MOE	miR-200c (RFAM)
354069	1818	CAATCAGCTAATGACACTGCCT	PS/MOE	miR-34b (RFAM)
354070	1753	AAACCCAGCAGACAATGTAGCT	PS/MOE	mir-221 (RFAM-M. musculus)
354071	1796	AGACCCAGTAGCCAGATGTAGCT	PS/MOE	mir-222 (RFAM-M. musculus)
354072	1917	TGAGCTCCTGGAGGACAGGGA	PS/MOE	mir-339-1 (RFAM)
354073	1925	TTTAAGTGCTCATAATGCAGT	PS/MOE	miR-20* (human)
354074	1926	TTTTCCCATGCCCTATACCTCT	PS/MOE	miR-202 (human)
354075	1856	CTTCAGCTATCACAGTACTGTA	PS/MOE	miR-101b
354076	1894	TACCTGCACTGTTAGCACTTTG	PS/MOE	miR-106a
354077	1772	ACAAGTGCCCTCACTGCAGT	PS/MOE	miR-17-3p
354078	1859	GAACAGGTAGTCTAAACACTGGG	PS/MOE	miR-199b (mouse)
354079	1915	TCTTCCCATGCGCTATACCTCT	PS/MOE	miR-202 (mouse)
354080	1808	AGGCAAAGGATGACAAAGGGAA	PS/MOE	miR-211 (mouse)
354081	1809	ATCCAGTCAGTTCCTGATGCAGTA	PS/MOE	miR-217 (mouse)
354082	1888	TAAACGGAACCACTAGTGACTTA	PS/MOE	miR-224 (RFAM mouse)
354083	1758	AACAAAATCACAAGTCTTCCA	PS/MOE	miR-7b

354084	1919	TGTAAGTGCTCGTAATGCAGT	PS/MOE	miR-20* (mouse)
354085	1778	ACACTTACTGGACACCTACTAGG	PS/MOE	mir-325 (human)
354086	1777	ACACTTACTGAGCACCTACTAGG	PS/MOE	mir-325 (mouse)
354087	1877	GCTGGAGGAAGGGCCCAGAGG	PS/MOE	mir-326 (human)
354088	1794	ACTGGAGGAAGGGCCCAGAGG	PS/MOE	mir-326 (mouse)
354089	1755	AAAGAGGTTAACCAGGTGTGTT	PS/MOE	mir-329-1 (human)
354090	1750	AAAAAGGTTAGCTGGGTGTGTT	PS/MOE	mir-329-1 (mouse)
354091	1914	TCTCTGCAGGCCGTGTGCTTTGC	PS/MOE	mir-330 (human)
354092	1913	TCTCTGCAGGCCCTGTGCTTTGC	PS/MOE	mir-330 (mouse)
354093	1757	AAAGGCATCATATAGGAGCTGGA	PS/MOE	mir-337 (human)
354094	1756	AAAGGCATCATATAGGAGCTGAA	PS/MOE	mir-337 (mouse)
354095	1872	GCCCTGGACTAGGAGTCAGCA	PS/MOE	mir-345 (human)
354096	1868	GCACTGGACTAGGGGTCAGCA	PS/MOE	mir-345 (mouse)
354097	1799	AGAGGCAGGCATGCGGGCAGACA	PS/MOE	mir-346 (human)
354098	1798	AGAGGCAGGCACTCGGGCAGACA	PS/MOE	mir-346 (mouse)
354099	1840	CCTCAAGGAGCCTCAGTCTAG	PS/MOE	miR-151 (mouse)
354100	1841	CCTCAAGGAGCCTCAGTCTAGT	PS/MOE	miR-151 (rat)
354101	1797	AGAGGCAGGCACTCAGGCAGACA	PS/MOE	miR-346 (rat)
354102	1819	CAATCAGCTAATTACACTGCCTA	PS/MOE	miR-34b (mouse)
354103	1842	CCTCAAGGAGCTTCAGTCTAGT	PS/MOE	miR-151 (hum)
354104	1751	AAACCACACAACCTACTACCTCA	PS/MOE 5-10-8 gapmer	let-7b-Ruvkun
354105	1752	AAACCATACAACCTACTACCTCA	PS/MOE 5-10-8 gapmer	let-7c-Ruvkun
354106	1764	AACTATGCAACCTACTACCTCT	PS/MOE 5-10-7 gapmer	let-7d-Ruvkun
354107	1765	AACTGTACAAACTACTACCTCA	PS/MOE 5-10-7 gapmer	let-7gL-Ruvkun
354108	1760	AACAGCACAAACTACTACCTCA	PS/MOE 5-10-7 gapmer	let-7i-Ruvkun
354109	1924	TTGGCATTCACCGCGTGCCTTAA	PS/MOE 5-10-8 gapmer	mir-124a-Ruvkun
354110	1833	CCAAGCTCAGACGGATCCGA	PS/MOE 5-10-5 gapmer	mir-127-Ruvkun
354111	1896	TACTTTCGGTTATCTAGCTTTA	PS/MOE 5-10-7 gapmer	mir-131-Ruvkun
354112	1846	CGGCCTGATTCACAACACCAGCT	PS/MOE 5-10-8 gapmer	mir-138-Ruvkun
354113	1768	ACAAACCATTATGTGCTGCTA	PS/MOE 5-10-6 gapmer	mir-15-Ruvkun
354114	1789	ACGCCAATATTTACGTGCTGCTA	PS/MOE 5-10-8 gapmer	mir-16-Ruvkun
354115	1852	CTATCTGCACTAGATGCACCTTA	PS/MOE 5-10-8 gapmer	mir-18-Ruvkun
354116	1779	ACAGCTGCTTTTGGGATTCCGTTG	PS/MOE 5-10-9 gapmer	mir-191-Ruvkun
354117	1891	TAACCGATTTCAGATGGTGCTA	PS/MOE 5-10-7 gapmer	mir-29a-Ruvkun

354118	1813	ATGCTTTGACAATACTATTGCACTG	PS/MOE 5-10-10 gapmer	mir-301-Ruvkun
354119	1805	AGCTGAGTGTAGGATGTTTACA	PS/MOE 5-10-7 gapmer	mir-30b-Ruvkun
354120	1804	AGCTGAGAGTGTAGGATGTTTACA	PS/MOE 5-10-9 gapmer	mir-30c-Ruvkun
354121	1807	AGCTTCCAGTCGGGGATGTTTACA	PS/MOE 5-10-9 gapmer	mir-30d-Ruvkun
354122	1835	CCAGCAGCACCTGGGGCAGTGG	PS/MOE 5-10-7 gapmer	mir-324-3p-Ruvkun
354123	1899	TATGGCAGACTGTGATTTGTTG	PS/MOE 5-10-7 gapmer	mir-7-1*-Ruvkun
354124	1850	CTACCTGCACTGTAAGCACTTTG	PS/MOE 5-10-8 gapmer	mir-91-Ruvkun
354125	1822	CACATAGGAATGAAAAGCCATA	PS/MOE 5-10-7 gapmer	mir-135b (Ruvkun)
354126	1895	TACTAGACTGTGAGCTCCTCGA	PS/MOE 5-10-7 gapmer	mir-151* (Ruvkun)
354127	1885	GGCTATAAAGTAACTGAGACGGA	PS/MOE 5-10-8 gapmer	mir-340 (Ruvkun)
354128	1923	TTCTAGGATAGGCCCAGGGGC	PS/MOE 5-10-6 gapmer	mir-331 (Ruvkun)
354129	1892	TACATACTTCTTTACATTCCA	PS/MOE 5-10-6 gapmer	miR-1 (RFAM)
354130	1817	CAATCAGCTAACTACACTGCCT	PS/MOE 5-10-7 gapmer	miR-34c (RFAM)
354131	1837	CCCCTATCACGATTAGCATTAA	PS/MOE 5-10-7 gapmer	miR-155 (RFAM)
354132	1910	TCCATCATTACCCGGCAGTATT	PS/MOE 5-10-7 gapmer	miR-200c (RFAM)
354133	1818	CAATCAGCTAATGACACTGCCT	PS/MOE 5-10-7 gapmer	miR-34b (RFAM)
354134	1753	AAACCCAGCAGACAATGTAGCT	PS/MOE 5-10-7 gapmer	mir-221 (RFAM-M. musculus)
354135	1796	AGACCCAGTAGCCAGATGTAGCT	PS/MOE 5-10-8 gapmer	mir-222 (RFAM-M. musculus)
354136	1917	TGAGCTCCTGGAGGACAGGGA	PS/MOE 5-10-6 gapmer	mir-339-1 (RFAM)
354137	1925	TTTAAGTGCTCATAATGCAGT	PS/MOE 5-10-6 gapmer	miR-20* (human)
354138	1926	TTTTCCCATGCCCTATACCTCT	PS/MOE 5-10-7 gapmer	miR-202 (human)
354139	1856	CTTCAGCTATCACAGTACTGTA	PS/MOE 5-10-7 gapmer	miR-101b
354140	1894	TACCTGCACTGTTAGCACTTTG	PS/MOE 5-10-7 gapmer	miR-106a
354141	1772	ACAAGTGCCCTCACTGCAGT	PS/MOE 5-10-5 gapmer	miR-17-3p
354142	1859	GAACAGGTAGTCTAAACACTGGG	PS/MOE 5-10-8 gapmer	miR-199b (mouse)
354143	1915	TCTTCCCATGCGCTATACCTCT	PS/MOE 5-10-7 gapmer	miR-202 (mouse)
354144	1808	AGGCAAAGGATGACAAAGGGAA	PS/MOE 5-10-7 gapmer	miR-211 (mouse)
354145	1809	ATCCAGTCAGTTCCTGATGCAGTA	PS/MOE 5-10-9 gapmer	miR-217 (mouse)
354146	1888	TAAACGGAACCACTAGTGACTTA	PS/MOE 5-10-8 gapmer	miR-224 (RFAM mouse)
354147	1758	AACAAAATCACAAGTCTTCCA	PS/MOE 5-10-6 gapmer	miR-7b

354148	1919	TGTAAGTGCTCGTAATGCAGT	PS/MOE 5-10-6 gapmer	miR-20* (mouse)
354149	1778	ACACTTACTGGACACCTACTAGG	PS/MOE 5-10-8 gapmer	mir-325 (human)
354150	1777	ACACTTACTGAGCACCTACTAGG	PS/MOE 5-10-8 gapmer	mir-325 (mouse)
354151	1877	GCTGGAGGAAGGGCCCAGAGG	PS/MOE 5-10-6 gapmer	mir-326 (human)
354152	1794	ACTGGAGGAAGGGCCCAGAGG	PS/MOE 5-10-6 gapmer	mir-326 (mouse)
354153	1755	AAAGAGGTTAACCAGGTGTGTT	PS/MOE 5-10-7 gapmer	mir-329-1 (human)
354154	1750	AAAAAGGTTAGCTGGGTGTGTT	PS/MOE 5-10-7 gapmer	mir-329-1 (mouse)
354155	1914	TCTCTGCAGGCCGTGTGCTTTGC	PS/MOE 5-10-8 gapmer	mir-330 (human)
354156	1913	TCTCTGCAGGCCCTGTGCTTTGC	PS/MOE 5-10-8 gapmer	mir-330 (mouse)
354157	1757	AAAGGCATCATATAGGAGCTGGA	PS/MOE 5-10-8 gapmer	mir-337 (human)
354158	1756	AAAGGCATCATATAGGAGCTGAA	PS/MOE 5-10-8 gapmer	mir-337 (mouse)
354159	1872	GCCCTGGACTAGGAGTCAGCA	PS/MOE 5-10-6 gapmer	mir-345 (human)
354160	1868	GCACTGGACTAGGGGTCAGCA	PS/MOE 5-10-6 gapmer	mir-345 (mouse)
354161	1799	AGAGGCAGGCATGCGGGCAGACA	PS/MOE 5-10-8 gapmer	mir-346 (human)
354162	1798	AGAGGCAGGCACTCGGGCAGACA	PS/MOE 5-10-8 gapmer	mir-346 (mouse)
354163	1840	CCTCAAGGAGCCTCAGTCTAG	PS/MOE 5-10-6 gapmer	miR-151 (mouse)
354164	1841	CCTCAAGGAGCCTCAGTCTAGT	PS/MOE 5-10-7 gapmer	miR-151 (rat)
354165	1797	AGAGGCAGGCACTCAGGCAGACA	PS/MOE 5-10-8 gapmer	miR-346 (rat)
354166	1819	CAATCAGCTAATTACACTGCCTA	PS/MOE 5-10-8 gapmer	miR-34b (mouse)
354167	1842	CCTCAAGGAGCTTCAGTCTAGT	PS/MOE 5-10-7 gapmer	miR-151 (human)

In accordance with the present invention, oligomeric compounds were designed to mimic one or more miRNAs, pre-miRNAs or pri-miRNAs. The oligomeric compounds of the present invention can also be designed to mimic a pri-miRNA, a pre-miRNA or a single- or double-stranded miRNA while incorporating certain chemical modifications that alter one or more properties of the mimic, thus creating a construct with superior properties over the endogenous pri-miRNA, pre-miRNA or miRNA. Oligomeric compounds representing synthesized miRNAs or chemically modified miRNA mimics were given internal numerical identifiers (ISIS Numbers) and are shown in Table 66. These oligomeric compounds can be analyzed for their effect on miRNA, pre-miRNA or pri-miRNA levels or for their effect on downstream target RNA transcripts by quantitative real-time PCR or they can be used in other assays to investigate the role of miRNAs or miRNA downstream targets. In Table 66, “pri-

miRNA" indicates the particular pri-miRNA from which the mature miRNA is normally processed when it occurs in the cellular environment. All compounds listed in Table 66 are ribonucleotides. The miRNA mimics consist of phosphorothioate internucleoside linkages, indicated by "PS" in the "Chemistry" column of Table 66, whereas synthesized miRNA oligomeric compounds with phosphodiester internucleoside linkages are indicated by "PO."

Table 66

miRNAs and miRNA mimics

ISIS #	SEQ ID NO	sequence	Linkage chemistry	Pri-miRNA
343092	437	ACCGAACAAAGTCTGACAGGA	PO	hypothetical miRNA-180
343098	1780	ACAGGAGTCTGAGCATTTGA	PO	miR-105 (Mourelatos)
343099	1882	GGAACTTAGCCACTGTGAA	PO	miR-27 (Mourelatos)
343101	855	TGCTCAATAAATACCCGTTGAA	PO	miR-95 (Mourelatos)
343102	1821	CACAAGATCGGATCTACGGGTT	PO	miR-99 (Mourelatos)
343103	1903	TCAGACCGAGACAAGTGCAATG	PO	miR-25 (Tuschl)
343104	1853	CTCAATAGACTGTGAGCTCCTT	PO	miR-28 (Tuschl)
343105	1825	CAGCTATGCCAGCATCTTGCC	PO	miR-31 (Tuschl)
343106	1865	GCAACTTAGTAATGTGCAATA	PO	miR-32 (Tuschl)
343107	854	GGAGTGAAGACACGGAGCCAGA	PO	miR-149
343108	1845	CGCAAGGTCGGTTCTACGGGTG	PO	miR-99b
343109	852	CACAGGTTAAAGGGTCTCAGGGA	PO	miR-125a
343110	853	AGCCAAGCTCAGACGGATCCGA	PO	miR-127
343111	1909	TCCATCATCAAAACAAATGGAGT	PO	miR-136
343112	1843	CGAAGGCAACACGGATAACCTA	PO	miR-154
343113	1880	GCTTCCAGTCGAGGATGTTTACA	PO	miR-30a-s
343114	1911	TCCGTGGTTCTACCCTGTGGTA	PO	miR-140-as
343115	1836	CCATAAAGTAGGAAACACTACA	PO	miR-142-as
343117	1762	AACCAATGTGCAGACTACTGTA	PO	miR-199-as
343118	1904	TCATACAGCTAGATAACCAAAGA	PO	miR-9
343119	1773	ACAAGTGCCTTCACTGCAGT	PO	miR-17
343120	1871	GCATTATTACTCACGGTACGA	PO	miR-126a
343121	1787	ACCTAATATATCAAACATATCA	PO	miR-190
343122	1766	AAGCCCAAAAGGAGAATTCTTTG	PO	miR-186
343123	1839	CCTATCTCCCCTCTGGACC	PO	miR-198a
343124	1806	AGCTGCTTTTGGGATTCCGTTG	PO	miR-191c
343125	760	CCACACACTTCCTTACATTCCA	PO	miR-206d
343126	761	ATCTGCACTGTCAGCACTTT	PO	miR-94
343127	762	ACCCTTATCAGTTCTCCGTCCA	PO	miR-184
343128	763	GCCAATATTTCTGTGCTGCTA	PO	miR-195
343129	764	CTGGGACTTTGTAGGCCAGTT	PO	miR-193
343130	1861	GAACTGCCTTTCTCTCCA	PO	miR-185
343131	1786	ACCCTCCACCATGCAAGGGATG	PO	miR-188
343132	1879	GCTGGGTGGAGAAGGTGGTGAA	PO	miR-197a
343133	1906	TCCACATGGAGTTGCTGTTACA	PO	miR-194
343134	1771	ACAAGCTTTTTGCTCGTCTTAT	PO	miR-208
343135	938	AGACACGTGCACTGTAGA	PO	miR-139
343136	1887	GTCATCATTACCAGGCAGTATTA	PO	miR-200b
343137	1831	CATCGTTACCAGACAGTGTTA	PO	miR-200a
343138	291	CTACCATAGGGTAAAACCACT	PS	mir-140
343139	292	GCTGCAAACATCCGACTGAAAG	PS	mir-30a
343140	293	ACAACCAGCTAAGACACTGCCA	PS	mir-34
343141	294	AACACTGATTTCAAATGGTGCTA	PS	mir-29b
343142	295	CGCCAATATTTACGTGCTGCTA	PS	mir-16

343143	296	CTAGTGGTCCTAAACATTTCAC	PS	mir-203
343144	297	AACAAAATCACTAGTCTTCCA	PS	mir-7
343145	298	ACAAATTCGGTTCTACAGGGTA	PS	mir-10b
343146	299	AAAAGAGACCGGTTCACTGTGA	PS	mir-128a
343147	300	TCACTTTTGTGACTATGCAA	PS	mir-153
343148	301	CAGAACTTAGCCACTGTGAA	PS	mir-27b
343149	302	GCAAAAATGTGCTAGTGCCAAA	PS	mir-96
343150	303	ACTACCTGCACTGTAAGCACTTTG	PS	mir-17as/mir-91
343151	304	CGCGTACCAAAAGTAATAATG	PS	mir-123/mir-126as
343152	305	GCGACCATGGCTGTAGACTGTTA	PS	mir-132
343153	306	AATGCCCCTAAAAATCCTTAT	PS	mir-108
343154	307	GTGGTAATCCCTGGCAATGTGAT	PS	mir-23b
343155	308	AGCACAAACTACTACCTCA	PS	let-7i
343156	309	GGCCGTGACTGGAGACTGTTA	PS	mir-212
343157	310	ACTTTCGGTTATCTAGCTTTA	PS	mir-131
343158	311	AACCACACAACCTACTACCTCA	PS	let-7b
343159	312	ATACATACTTCTTTACATTCCA	PS	mir-1d
343160	313	ACAAACACCATTGTCACACTCCA	PS	mir-122a
343161	314	ACAGTTCTTCAACTGGCAGCTT	PS	mir-22
343162	315	ACAGGCCGGGACAAGTGCAATA	PS	mir-92
343163	316	GTAGTGCTTTCTACTTTATG	PS	mir-142
343164	317	CAGTGAATTCTACCAGTGCCATA	PS	mir-183
343165	318	CTGCCTGTCTGTGCCTGCTGT	PS	mir-214
343166	319	TGAGCTACAGTGCTTCATCTCA	PS	mir-143
343167	320	GGCTGTCAATTCATAGGTCAG	PS	mir-192
343168	321	AACTATACAACCTACTACCTCA	PS	let-7a
343169	322	ACTCACCGACAGCGTTGAATGTT	PS	mir-181a
343170	323	CAGACTCCGGTGGAATGAAGGA	PS	mir-205
343171	324	TCATAGCCCTGTACAATGCTGCT	PS	mir-103
343172	325	AGCCTATCCTGGATTACTTGAA	PS	mir-26a
343173	326	CAATGCAACTACAATGCAC	PS	mir-33a
343174	327	CCCAACAACATGAAACTACCTA	PS	mir-196
343175	328	TGATAGCCCTGTACAATGCTGCT	PS	mir-107
343176	329	GCTACCTGCACTGTAAGCACTTTT	PS	mir-106
343177	330	AACTATACAATCTACTACCTCA	PS	let-7f
343178	331	AACCGATTTCAAATGGTGCTAG	PS	mir-29c
343179	332	GCCCTTTTAACATTGCACTG	PS	mir-130a
343180	333	ACATGGTTAGATCAAGCACAA	PS	mir-218
343181	334	TGGCATTCACCGCGTGCCTTAA	PS	mir-124a
343182	335	TCAACATCAGTCTGATAAGCTA	PS	mir-21
343183	336	CTAGTACATCATCTATACTGTA	PS	mir-144
343184	337	GAAACCCAGCAGACAATGTAGCT	PS	mir-221
343185	338	GAGACCCAGTAGCCAGATGTAGCT	PS	mir-222
343186	339	CTTCCAGTCGGGGATGTTTACA	PS	mir-30d
343187	340	TCAGTTTTGCATGGATTTGCACA	PS	mir-19b
343188	341	GAAAGAGACCGGTTCACTGTGA	PS	mir-128b
343189	342	GCAAGCCCAGACCGCAAAAAG	PS	mir-129
343190	343	TAGCTGGTTGAAGGGGACCAA	PS	mir-133b
343191	344	ACTATGCAACCTACTACCTCT	PS	let-7d
343192	345	TGTAAACCATGATGTGCTGCTA	PS	mir-15b
343193	346	AACCGATTTCAGATGGTGCTAG	PS	mir-29a
343194	347	GAACAGATAGTCTAAACACTGGG	PS	mir-199b
343195	348	ACTATACAACCTCCTACCTCA	PS	let-7e
343196	349	AACCATACAACCTACTACCTCA	PS	let-7c
343197	350	AGGCATAGGATGACAAAGGGAA	PS	mir-204
343198	351	AAGGGATTCCTGGGAAAACTGGAC	PS	mir-145
343199	352	GGTACAATCAACGGTCGATGGT	PS	mir-213
343200	353	CTACCTGCACTATAAGCACTTTA	PS	mir-20
343201	354	ACAGCTGGTTGAAGGGGACCAA	PS	mir-133a

343202	355	GATTCACAACACCAGCT	PS	mir-138
343203	356	AACAATACAACTTACTACCTCA	PS	mir-98
343204	357	TCACAAGTTAGGGTCTCAGGGA	PS	mir-125b
343205	358	GAACAGGTAGTCTGAACACTGGG	PS	mir-199a
343206	359	AACCCACCGACAGCAATGAATGTT	PS	mir-181b
343207	360	CCATCTTTACCAGACAGTGTT	PS	mir-141
343208	361	TATCTGCACTAGATGCACCTTA	PS	mir-18
343209	362	AAAGTGTCAGATACGGTGTGG	PS	mir-220
343210	363	CTGTTCCTGCTGAACTGAGCCA	PS	mir-24
343211	364	AGGCGAAGGATGACAAAGGGAA	PS	mir-211
343212	365	TCAGTTATCACAGTACTGTA	PS	mir-101
343213	366	GCTGAGTGTAGGATGTTTACA	PS	mir-30b
343214	367	CACAAATTCGGATCTACAGGGTA	PS	mir-10a
343215	368	TCAGTTTTGCATAGATTTGCACA	PS	mir-19a
343216	369	CACAAACCATTATGTGCTGCTA	PS	mir-15a
343217	370	CTACGCGTATTCTTAAGCAATA	PS	mir-137
343218	371	AGAATTGCGTTTGGACAATCA	PS	mir-219
343219	372	ACAAAGTTCTGTGATGCACTGA	PS	mir-148b
343220	373	GCCCTTTCATCATTGCACTG	PS	mir-130b
343221	374	CACAGTTGCCAGCTGAGATTA	PS	mir-216
343222	375	CACAAGTTCGGATCTACGGGTT	PS	mir-100
343223	376	CCGGCTGCAACACAAGACACGA	PS	mir-187
343224	377	CAGCCGCTGTCACACGCACAG	PS	mir-210
343225	378	GTCTGTCAATTCATAGGTCAT	PS	mir-215
343226	379	GGGGTATTTGACAAACTGACA	PS	mir-223
343227	380	GCTGAGAGTGTAGGATGTTTACA	PS	mir-30c
343228	381	AACCTATCCTGAATTACTTGAA	PS	mir-26b
343229	382	CCAAGTTCTGTCATGCACTGA	PS	mir-152
343230	383	ATCACATAGGAATAAAAAGCCATA	PS	mir-135
343231	384	ATCCAATCAGTTCCTGATGCAGTA	PS	mir-217
343232	385	ACTGTACAAACTACTACCTCA	PS	let-7g
343233	386	CAATGCAACAGCAATGCAC	PS	mir-33b
343234	387	TGTGAGTTCTACCATTGCCAAA	PS	mir-182
343235	388	ACAAAGTTCTGTAGTGCACTGA	PS	mir-148a
343236	389	GGAAATCCCTGGCAATGTGAT	PS	mir-23a
343237	390	ACTCACCGACAGGTTGAATGTT	PS	mir-181c
343238	391	ACTGTAGGAATATGTTTGATA	PS	hypothetical miRNA-013
343239	392	ATTAAAAAGTCCTCTTGCCCA	PS	hypothetical miRNA-023
343240	393	GCTGCCGTATATGTGATGTCA	PS	hypothetical miRNA-030
343241	394	GGTAGGTGGAATACTATAACA	PS	hypothetical miRNA-033
343242	395	TAAACATCACTGCAAGTCTTA	PS	hypothetical miRNA-039
343243	396	TTGTAAGCAGTTTTGTTGACA	PS	hypothetical miRNA-040
343244	397	TCACAGAGAAAACAACTGGTA	PS	hypothetical miRNA-041
343245	398	CCTCTCAAAGATTTCCTGTCA	PS	hypothetical miRNA-043
343246	399	TGTCAGATAAACAGAGTGGAA	PS	hypothetical miRNA-044
343247	400	GAGAATCAATAGGGCATGCAA	PS	hypothetical miRNA-055
343248	401	AAGAACATTAAGCATCTGACA	PS	hypothetical miRNA-058
343249	402	AATCTCTGCAGGCAAATGTGA	PS	hypothetical miRNA-

				070
343250	403	AAACCCCTATCACGATTAGCA	PS	hypothetical miRNA-071
343251	404	GCCCCATTAATATTTTAACCA	PS	hypothetical miRNA-075
343252	405	CCCAATATCAAACATATCA	PS	hypothetical miRNA-079
343253	406	TATGATAGCTTCCCCATGTAA	PS	hypothetical miRNA-083
343254	407	CCTCAATTATTGGAAATCACA	PS	hypothetical miRNA-088
343255	408	ATTGATGCGCCATTTGGCCTA	PS	hypothetical miRNA-090
343256	409	CTGTGACTTCTCTATCTGCCT	PS	hypothetical miRNA-099
343257	410	AAACTTGTTAATTGACTGTCA	PS	hypothetical miRNA-101
343258	411	AAAGAAGTATATGCATAGGAA	PS	hypothetical miRNA-105
343259	412	GATAAAGCCAATAAACTGTCA	PS	hypothetical miRNA-107
343260	413	TCCGAGTCGGAGGAGGAGGAA	PS	hypothetical miRNA-111
343261	414	ATCATTACTGGATTGCTGTAA	PS	hypothetical miRNA-120
343262	415	CAAAAATTATCAGCCAGTTTA	PS	hypothetical miRNA-137
343263	416	AATCTCATTTTCATACTTGCA	PS	hypothetical miRNA-138
343264	417	AGAAGGTGGGGAGCAGCGTCA	PS	hypothetical miRNA-142
343265	418	CAAAATTGCAAGCAAATTGCA	PS	hypothetical miRNA-143
343266	419	TCCACAAAGCTGAACATGTCT	PS	hypothetical miRNA-144
343267	420	TATTATCAGCATCTGCTTGCA	PS	hypothetical miRNA-153
343268	421	AATAACACACATCCACTTTAA	PS	hypothetical miRNA-154
343269	422	AAGAAGGAAGGAGGGAAAGCA	PS	hypothetical miRNA-156
343270	423	ATGACTACAAGTTTATGGCCA	PS	hypothetical miRNA-161
343271	424	CAAAACATAAAAATCCTTGCA	PS	hypothetical miRNA-164
343272	425	TTACAGGTGCTGCAACTGGAA	PS	hypothetical miRNA-166
343273	426	AGCAGGTGAAGGCACCTGGCT	PS	hypothetical miRNA-168
343274	427	TATGAAATGCCAGAGCTGCCA	PS	hypothetical miRNA-169
343275	428	CCAAGTGTTAGAGCAAGATCA	PS	hypothetical miRNA-170
343276	429	AACGATAAAACATACTTGTCA	PS	hypothetical miRNA-171
343277	430	AGTAACTTCTTGCAGTTGGA	PS	hypothetical miRNA-172
343278	431	AGCCTCCTTCTTCTCGTACTA	PS	hypothetical miRNA-173
343279	432	ACCTCAGGTGGTTGAAGGAGA	PS	hypothetical miRNA-

				175
343280	433	ATATGTCATATCAAACTCCTA	PS	hypothetical miRNA-176
343281	434	GTGAGAGTAGCATGTTTGTCT	PS	hypothetical miRNA-177
343282	435	TGAAGGTTCGGAGATAGGCTA	PS	hypothetical miRNA-178
343283	436	AATTGGACAAAGTGCCTTTCA	PS	hypothetical miRNA-179
343284	437	ACCGAACAAAGTCTGACAGGA	PS	hypothetical miRNA-180
343285	438	AACTACTTCCAGAGCAGGTGA	PS	hypothetical miRNA-181
343286	439	GTAAGCGCAGCTCCACAGGCT	PS	hypothetical miRNA-183
343287	440	GAGCTGCTCAGCTGGCCATCA	PS	hypothetical miRNA-185
343288	441	TACTTTTCATTCCCCTCACCA	PS	hypothetical miRNA-188
343289	236	TAGCTTATCAGACTGATGTTGA	PS	miR-104 (Mourelatos)
343290	1780	ACAGGAGTCTGAGCATTTGA	PS	miR-105 (Mourelatos)
343291	1882	GGAACTTAGCCACTGTGAA	PS	miR-27 (Mourelatos)
343292	848	CTACCTGCACGAACAGCACTTT	PS	miR-93 (Mourelatos)
343293	855	TGCTCAATAAATACCCGTTGAA	PS	miR-95 (Mourelatos)
343294	1821	CACAAGATCGGATCTACGGGTT	PS	miR-99 (Mourelatos)
343295	1903	TCAGACCGAGACAAGTGCAATG	PS	miR-25 (Tuschl)
343296	1853	CTCAATAGACTGTGAGCTCCTT	PS	miR-28 (Tuschl)
343297	1825	CAGCTATGCCAGCATCTTGCC	PS	miR-31 (Tuschl)
343298	1865	GCAACTTAGTAATGTGCAATA	PS	miR-32 (Tuschl)
343299	854	GGAGTGAAGACACGGAGCCAGA	PS	miR-149
343300	1845	CGCAAGGTCGGTTCTACGGGTG	PS	miR-99b
343301	852	CACAGGTTAAAGGGTCTCAGGGA	PS	miR-125a
343302	853	AGCCAAGCTCAGACGGATCCGA	PS	miR-127
343303	1909	TCCATCATCAAAACAAATGGAGT	PS	miR-136
343304	1843	CGAAGGCAACACGGATAACCTA	PS	miR-154
343305	1880	GCTTCCAGTCGAGGATGTTTACA	PS	miR-30a-s
343306	1911	TCCGTGGTTCTACCCTGTGGTA	PS	miR-140-as
343307	1836	CCATAAAGTAGGAAACACTACA	PS	miR-142-as
343308	1761	AACAGGTAGTCTGAACACTGGG	PS	miR-199-s
343309	1762	AACCAATGTGCAGACTACTGTA	PS	miR-199-as
343310	1904	TCATACAGCTAGATAACCAAAGA	PS	miR-9
343311	1773	ACAAGTGCCTTCACTGCAGT	PS	miR-17
343312	1871	GCATTATTACTCACGGTACGA	PS	miR-126a
343313	1787	ACCTAATATATCAAACATATCA	PS	miR-190
343314	1766	AAGCCCAAAAGGAGAATTCTTTG	PS	miR-186
343315	1839	CCTATCTCCCCTCTGGACC	PS	miR-198a
343316	1806	AGCTGCTTTTGGGATTCCGTTG	PS	miR-191c
343317	760	CCACACACTTCCTTACATTCCA	PS	miR-206d
343318	761	ATCTGCACTGTCAGCACTTT	PS	miR-94
343319	762	ACCCTTATCAGTTCTCCGTCCA	PS	miR-184
343320	763	GCCAATATTTCTGTGCTGCTA	PS	miR-195
343321	764	CTGGGACTTTGTAGGCCAGTT	PS	miR-193
343322	1861	GAACTGCCTTTCTCTCCA	PS	miR-185
343323	1786	ACCCTCCACCATGCAAGGGATG	PS	miR-188
343324	1879	GCTGGGTGGAGAAGGTGGTGAA	PS	miR-197a
343325	1906	TCCACATGGAGTTGCTGTTACA	PS	miR-194
343326	1771	ACAAGCTTTTTGCTCGTCTTAT	PS	miR-208
343327	938	AGACACGTGCACTGTAGA	PS	miR-139
343328	1887	GTCATCATTACCAGGCAGTATTA	PS	miR-200b

343329	1831	CATCGTTACCAGACAGTGTTA	PS	miR-200a
344290	1774	ACACAAATTCGGTTCTACAGGG	PO	miR-10b (Tuschl)
344292	1867	GCACGAACAGCACTTTG	PO	miR-93 (Tuschl)
344293	1770	ACAAGATCGGATCTACGGGT	PO	miR-99a (Tuschl)
344297	1912	TCTAGTGGTCCTAAACATTTCA	PO	miR-203 (Tuschl)
344298	1828	CAGGCATAGGATGACAAAGGGAA	PO	miR-204 (Tuschl)
344299	1767	AATACATACTTCTTTACATTCCA	PO	miR-1d (Tuschl)
344300	1769	ACAAATTCGGATCTACAGGGTA	PS	miR-10 (Tuschl)
344301	1774	ACACAAATTCGGTTCTACAGGG	PS	miR-10b (Tuschl)
344302	1890	TAACCGATTTCAAATGGTGCTA	PS	miR-29c (Tuschl)
344303	1867	GCACGAACAGCACTTTG	PS	miR-93 (Tuschl)
344304	1770	ACAAGATCGGATCTACGGGT	PS	miR-99a (Tuschl)
344305	1816	CAAACACCATTGTCACACTCCA	PS	miR-122a,b (Tuschl)
344306	1920	TGTCAATTCATAGGTCAG	PS	miR-192 (Tuschl)
344307	1832	CCAACAACATGAAACTACCTA	PS	miR-196 (Tuschl)
344308	1912	TCTAGTGGTCCTAAACATTTCA	PS	miR-203 (Tuschl)
344309	1828	CAGGCATAGGATGACAAAGGGAA	PS	miR-204 (Tuschl)
344310	1767	AATACATACTTCTTTACATTCCA	PS	miR-1d (Tuschl)
344354	1812	ATGCCCTTTTAACATTGCACTG	PO	mir-130 (Kosik)
344356	1921	TGTCCGTGGTTCTACCCTGTGGTA	PO	mir-239* (Kosik)
344358	1814	ATGCTTTTTGGGGTAAGGGCTT	PO	mir-129as/mir-258* (Kosik)
344359	1811	ATGCCCTTTCATCATTGCACTG	PO	mir-266* (Kosik)
344360	1918	TGGCATTCACCGCGTGCCTTA	PS	mir-124a (Kosik)
344361	1754	AAAGAGACCGGTTCACTGTGA	PS	mir-128 (Kosik)
344362	1812	ATGCCCTTTTAACATTGCACTG	PS	mir-130 (Kosik)
344363	1854	CTCACCGACAGCGTTGAATGTT	PS	mir-178 (Kosik)
344364	1921	TGTCCGTGGTTCTACCCTGTGGTA	PS	mir-239* (Kosik)
344365	1823	CACATGGTTAGATCAAGCACAA	PS	mir-253* (Kosik)
344366	1814	ATGCTTTTTGGGGTAAGGGCTT	PS	mir-129as/mir-258* (Kosik)
344367	1811	ATGCCCTTTCATCATTGCACTG	PS	mir-266* (Kosik)
344625	1785	ACATTTTTCGTTATTGCTCTTGA	PO	mir-240* (Kosik)
344626	1790	ACGGAAGGGCAGAGAGGGCCAG	PO	mir-232* (Kosik)
344627	1775	ACACCAATGCCCTAGGGGATGCG	PO	mir-227* (Kosik)
344628	1834	CCAGCAGCACCTGGGGCAGT	PO	mir-226* (Kosik)
344629	1900	TCAACAAAATCACTGATGCTGGA	PO	mir-244* (Kosik)
344630	1800	AGAGGTCGACCGTGTAATGTGC	PO	mir-224* (Kosik)
344631	1862	GACGGGTGCGATTTCTGTGTGAGA	PO	mir-248* (Kosik)
344632	1785	ACATTTTTCGTTATTGCTCTTGA	PS	mir-240* (Kosik)
344633	1790	ACGGAAGGGCAGAGAGGGCCAG	PS	mir-232* (Kosik)
344634	1775	ACACCAATGCCCTAGGGGATGCG	PS	mir-227* (Kosik)
344635	1834	CCAGCAGCACCTGGGGCAGT	PS	mir-226* (Kosik)
344636	1900	TCAACAAAATCACTGATGCTGGA	PS	mir-244* (Kosik)
344637	1800	AGAGGTCGACCGTGTAATGTGC	PS	mir-224* (Kosik)
344638	1862	GACGGGTGCGATTTCTGTGTGAGA	PS	mir-248* (Kosik)
345527	1827	CAGCTTTCAAAATGATCTCAC	PO	miR-Bantam
345529	1897	TAGGAGAGAGAAAAAGACTGA	PS	miR-14
345531	1827	CAGCTTTCAAAATGATCTCAC	PS	miR-Bantam
345708	1897	TAGGAGAGAGAAAAAGACTGA	PO	miR-14
346721	1884	GGCGGAACTTAGCCACTGTGAA	PO	miR-27a (RFAM-Human)
346722	1857	CTTCAGTTATCACAGTACTGTA	PO	miR-101 (RFAM-Human)
346727	1802	AGCAAGCCCAGACCGCAAAAAG	PO	miR-129b (RFAM-Human)
346728	1898	TAGTTGGCAAGTCTAGAACCA	PO	miR-182* (RFAM-Human)
346729	1830	CATCATTACCAGGCAGTATTAGAG	PO	miR-200a (RFAM-Human)
346730	1792	ACTGATATCAGCTCAGTAGGCAC	PO	miR-189 (RFAM-Human)
346731	1870	GCAGAAGCATTTCCACACAC	PO	miR-147 (RFAM-Human)
346732	1889	TAAACGGAACCACTAGTGACTTG	PO	miR-224 (RFAM-Human)
346733	1838	CCCTCTGGTCAACCAGTCACA	PO	miR-134 (RFAM-Human)

346734	1763	AACCCATGGAATTCAGTTCTCA	PO	miR-146 (RFAM-Human)
346735	1824	CACTGGTACAAGGGTTGGGAGA	PO	miR-150 (RFAM-Human)
346736	1893	TACCTGCACTATAAGCACTTTA	PS	mir-20
346737	1788	ACCTATCCTGAATTACTTGAA	PS	mir-26b
346738	1884	GGCGGAACTTAGCCACTGTGAA	PS	miR-27a (RFAM-Human)
346739	1857	CTTCAGTTATCACAGTACTGTA	PS	miR-101 (RFAM-Human)
346740	1793	ACTGATTTCAAATGGTGCTA	PS	mir-29b
346741	1847	CGGCTGCAACACAAGACACGA	PS	miR-187 (RFAM-Human)
346742	1844	CGACCATGGCTGTAGACTGTTA	PS	miR-132 (RFAM-Human)
346743	1901	TCACATAGGAATAAAAAGCCATA	PS	miR-135 (RFAM-Human)
346744	1802	AGCAAGCCCAGACCGCAAAAAG	PS	miR-129b (RFAM-Human)
346745	1898	TAGTTGGCAAGTCTAGAACCA	PS	miR-182* (RFAM-Human)
346746	1830	CATCATTACCAGGCAGTATTAGAG	PS	miR-200a (RFAM-Human)
346747	1792	ACTGATATCAGCTCAGTAGGCAC	PS	miR-189 (RFAM-Human)
346748	1870	GCAGAAGCATTTCCACACAC	PS	miR-147 (RFAM-Human)
346749	1889	TAAACGGAACCACTAGTGACTTG	PS	miR-224 (RFAM-Human)
346750	1838	CCCTCTGGTCAACCAGTCACA	PS	miR-134 (RFAM-Human)
346751	1763	AACCCATGGAATTCAGTTCTCA	PS	miR-146 (RFAM-Human)
346752	1824	CACTGGTACAAGGGTTGGGAGA	PS	miR-150 (RFAM-Human)
346939	1907	TCCAGTCAAGGATGTTTACA	PO	miR-30e (RFAM-M. musculus)
346940	1781	ACAGGATTGAGGGGGGGCCCT	PO	miR-296 (RFAM-M. musculus)
346941	1815	ATGTATGTGGGACGGTAAACCA	PO	miR-299 (RFAM-M. musculus)
346942	1881	GCTTTGACAATACTATTGCACTG	PO	miR-301 (RFAM-M. musculus)
346943	1902	TCACCAAAACATGGAAGCACTTA	PO	miR-302 (RFAM-M. musculus)
346944	1866	GCAATCAGCTAACTACACTGCCT	PO	miR-34a (RFAM-M. musculus)
346945	1776	ACACTGATTTCAAATGGTGCTA	PO	miR-29b (RFAM-M. musculus)
346947	1795	AGAAAGGCAGCAGGTCGTATAG	PO	let-7d* (RFAM-M. musculus)
346948	1810	ATCTGCACTGTCAGCACTTTA	PO	miR-106b (RFAM-M. musculus)
346949	1784	ACATCGTTACCAGACAGTGTTA	PO	miR-200a (RFAM-M. musculus)
346950	1874	GCGGAACTTAGCCACTGTGAA	PO	miR-27a (RFAM-M. musculus)
346951	1826	CAGCTATGCCAGCATCTTGCCT	PO	miR-31 (RFAM-M. musculus)
346954	1801	AGCAAAAATGTGCTAGTGCCAAA	PO	miR-96 (RFAM-M. musculus)
346955	1759	AACAACCAGCTAAGACACTGCCA	PO	miR-172 (RFAM-M. musculus)
346956	1907	TCCAGTCAAGGATGTTTACA	PS	miR-30e (RFAM-M. musculus)
346957	1781	ACAGGATTGAGGGGGGGCCCT	PS	miR-296 (RFAM-M. musculus)
346958	1815	ATGTATGTGGGACGGTAAACCA	PS	miR-299 (RFAM-M. musculus)
346959	1881	GCTTTGACAATACTATTGCACTG	PS	miR-301 (RFAM-M. musculus)
346960	1902	TCACCAAAACATGGAAGCACTTA	PS	miR-302 (RFAM-M. musculus)
346961	1866	GCAATCAGCTAACTACACTGCCT	PS	miR-34a (RFAM-M. musculus)
346962	1776	ACACTGATTTCAAATGGTGCTA	PS	miR-29b (RFAM-M.

				musculus)
346963	1851	CTAGTGGTCCTAAACATTTCA	PS	miR-203 (RFAM-M. musculus)
346964	1795	AGAAAGGCAGCAGGTCGTATAG	PS	let-7d* (RFAM-M. musculus)
346965	1810	ATCTGCACTGTCAGCACTTTA	PS	miR-106b (RFAM-M. musculus)
346966	1784	ACATCGTTACCAGACAGTGTTA	PS	miR-200a (RFAM-M. musculus)
346967	1874	GCGGAACTTAGCCACTGTGAA	PS	miR-27a (RFAM-M. musculus)
346968	1826	CAGCTATGCCAGCATCTTGCCT	PS	miR-31 (RFAM-M. musculus)
346969	1829	CAGGCCGGGACAAGTGCAATA	PS	miR-92 (RFAM-M. musculus)
346970	1849	CTACCTGCACGAACAGCACTTTG	PS	miR-93 (RFAM-M. musculus)
346971	1801	AGCAAAAATGTGCTAGTGCCAAA	PS	miR-96 (RFAM-M. musculus)
346972	1759	AACAACCAGCTAAGACACTGCCA	PS	miR-172 (RFAM-M. musculus)
348169	1922	TTCGCCCTCTCAACCCAGCTTTT	PO	miR-320
348170	1860	GAACCCACAATCCCTGGCTTA	PO	miR-321-1
348172	1908	TCCATAAAGTAGGAAACACTACA	PO	miR-142as (Michael et al)
348175	1905	TCATCATTACCAGGCAGTATTA	PO	miR-200b (Michael et al)
348177	1820	CACAAATTCGGTTCTACAGGGTA	PO	miR-10b (Michael et al)
348178	1878	GCTGGATGCAAACCTGCAAAACT	PO	miR-19b (Michael et al)
348180	1869	GCAGAACTTAGCCACTGTGAA	PO	miR-27* (Michael et al)
348181	1858	CTTCCAGTCAAGGATGTTTACA	PO	miR-97 (Michael et al)
348182	1855	CTGGCTGTCAATTCATAGGTCA	PO	miR-192 (Michael et al)
348183	1922	TTCGCCCTCTCAACCCAGCTTTT	PS	miR-320
348184	1860	GAACCCACAATCCCTGGCTTA	PS	miR-321-1
348185	1886	GTAAACCATGATGTGCTGCTA	PS	miR-15b (Michael et al)
348186	1908	TCCATAAAGTAGGAAACACTACA	PS	miR-142as (Michael et al)
348188	1883	GGATTCCTGGGAAAACTGGAC	PS	miR-145 (Michael et al)
348189	1905	TCATCATTACCAGGCAGTATTA	PS	miR-200b (Michael et al)
348190	1791	ACTATACAATCTACTACCTCA	PS	let-7f (Michael et al)
348191	1820	CACAAATTCGGTTCTACAGGGTA	PS	miR-10b (Michael et al)
348192	1878	GCTGGATGCAAACCTGCAAAACT	PS	miR-19b (Michael et al)
348193	1873	GCCTATCCTGGATTACTTGAA	PS	miR-26a (Michael et al)
348194	1869	GCAGAACTTAGCCACTGTGAA	PS	miR-27* (Michael et al)
348195	1858	CTTCCAGTCAAGGATGTTTACA	PS	miR-97 (Michael et al)
348196	1855	CTGGCTGTCAATTCATAGGTCA	PS	miR-192 (Michael et

				al)
354168	1751	AAACCACACAACCTACTACCTCA	PS	let-7b-Ruvkun
354169	1752	AAACCATACAACCTACTACCTCA	PS	let-7c-Ruvkun
354170	1764	AACTATGCAACCTACTACCTCT	PS	let-7d-Ruvkun
354171	1765	AACTGTACAAACTACTACCTCA	PS	let-7gL-Ruvkun
354172	1760	AACAGCACAAACTACTACCTCA	PS	let-7i-Ruvkun
354173	1924	TTGGCATTCACCGCGTGCCTTAA	PS	mir-124a-Ruvkun
354174	1833	CCAAGCTCAGACGGATCCGA	PS	mir-127-Ruvkun
354175	1896	TACTTTCGGTTATCTAGCTTTA	PS	mir-131-Ruvkun
354176	1846	CGGCCTGATTCACAACACCAGCT	PS	mir-138-Ruvkun
354177	1768	ACAAACCATTATGTGCTGCTA	PS	mir-15-Ruvkun
354178	1789	ACGCCAATATTTACGTGCTGCTA	PS	mir-16-Ruvkun
354179	1852	CTATCTGCACTAGATGCACCTTA	PS	mir-18-Ruvkun
354180	1779	ACAGCTGCTTTTGGGATTCCGTTG	PS	mir-191-Ruvkun
354181	1891	TAACCGATTTCAGATGGTGCTA	PS	mir-29a-Ruvkun
354182	1813	ATGCTTTGACAATACTATTGCACTG	PS	mir-301-Ruvkun
354183	1805	AGCTGAGTGTAGGATGTTTACA	PS	mir-30b-Ruvkun
354184	1804	AGCTGAGAGTGTAGGATGTTTACA	PS	mir-30c-Ruvkun
354185	1807	AGCTTCCAGTCGGGGATGTTTACA	PS	mir-30d-Ruvkun
354186	1835	CCAGCAGCACCTGGGGCAGTGG	PS	mir-324-3p-Ruvkun
354187	1899	TATGGCAGACTGTGATTTGTTG	PS	mir-7-1*-Ruvkun
354188	1850	CTACCTGCACTGTAAGCACTTTG	PS	mir-91-Ruvkun
354189	1822	CACATAGGAATGAAAAGCCATA	PS	mir-135b (Ruvkun)
354190	1895	TACTAGACTGTGAGCTCCTCGA	PS	mir-151* (Ruvkun)
354191	1885	GGCTATAAAGTAACTGAGACGGA	PS	mir-340 (Ruvkun)
354192	1923	TTCTAGGATAGGCCCAGGGGC	PS	mir-331 (Ruvkun)
354193	1892	TACATACTTCTTTACATTCCA	PS	miR-1 (RFAM)
354194	1817	CAATCAGCTAACTACACTGCCT	PS	miR-34c (RFAM)
354195	1837	CCCCTATCACGATTAGCATTAA	PS	miR-155 (RFAM)
354196	1910	TCCATCATTACCCGGCAGTATT	PS	miR-200c (RFAM)
354197	1818	CAATCAGCTAATGACACTGCCT	PS	miR-34b (RFAM)
354198	1753	AAACCCAGCAGACAATGTAGCT	PS	mir-221 (RFAM-M. musculus)
354199	1796	AGACCCAGTAGCCAGATGTAGCT	PS	mir-222 (RFAM-M. musculus)
354200	1917	TGAGCTCCTGGAGGACAGGGA	PS	mir-339-1 (RFAM)
354201	1925	TTTAAGTGCTCATAATGCAGT	PS	miR-20* (human)
354202	1926	TTTTCCCATGCCCTATACCTCT	PS	miR-202 (human)
354203	1856	CTTCAGCTATCACAGTACTGTA	PS	miR-101b
354204	1894	TACCTGCACTGTTAGCACTTTG	PS	miR-106a
354205	1772	ACAAGTGCCCTCACTGCAGT	PS	miR-17-3p
354206	1859	GAACAGGTAGTCTAAACACTGGG	PS	miR-199b (mouse)
354207	1915	TCTTCCCATGCGCTATACCTCT	PS	miR-202 (mouse)
354208	1808	AGGCAAAGGATGACAAAGGGAA	PS	miR-211 (mouse)
354209	1809	ATCCAGTCAGTTCCTGATGCAGTA	PS	miR-217 (mouse)
354210	1888	TAAACGGAACCACTAGTGACTTA	PS	miR-224 (RFAM-mouse)
354211	1758	AACAAAATCACAAGTCTTCCA	PS	miR-7b
354212	1919	TGTAAGTGCTCGTAATGCAGT	PS	miR-20* (mouse)
354213	1778	ACACTTACTGGACACCTACTAGG	PS	mir-325 (human)
354214	1777	ACACTTACTGAGCACCTACTAGG	PS	mir-325 (mouse)
354215	1877	GCTGGAGGAAGGGCCCAGAGG	PS	mir-326 (human)
354216	1794	ACTGGAGGAAGGGCCCAGAGG	PS	mir-326 (mouse)
354217	1755	AAAGAGGTTAACCAGGTGTGTT	PS	mir-329-1 (human)
354218	1750	AAAAAGGTTAGCTGGGTGTGTT	PS	mir-329-1 (mouse)
354219	1914	TCTCTGCAGGCCGTGTGCTTTGC	PS	mir-330 (human)
354220	1913	TCTCTGCAGGCCCTGTGCTTTGC	PS	mir-330 (mouse)
354221	1757	AAAGGCATCATATAGGAGCTGGA	PS	mir-337 (human)
354222	1756	AAAGGCATCATATAGGAGCTGAA	PS	mir-337 (mouse)
354223	1872	GCCCTGGACTAGGAGTCAGCA	PS	mir-345 (human)

354224	1868	GCACTGGACTAGGGGTCAGCA	PS	mir-345 (mouse)
354225	1799	AGAGGCAGGCATGCGGGCAGACA	PS	mir-346 (human)
354226	1798	AGAGGCAGGCACTCGGGCAGACA	PS	mir-346 (mouse)
354228	1841	CCTCAAGGAGCCTCAGTCTAGT	PS	miR-151 (rat)
354229	1797	AGAGGCAGGCACTCAGGCAGACA	PS	miR-346 (rat)
354230	1819	CAATCAGCTAATTACACTGCCTA	PS	miR-34b (mouse)
354231	1842	CCTCAAGGAGCTTCAGTCTAGT	PS	miR-151 (human)
354232	1751	AAACCACACAACCTACTACCTCA	PO	let-7b-Ruvkun
354234	1764	AACTATGCAACCTACTACCTCT	PO	let-7d-Ruvkun
354235	1765	AACTGTACAAACTACTACCTCA	PO	let-7gL-Ruvkun
354236	1760	AACAGCACAAACTACTACCTCA	PO	let-7i-Ruvkun
354238	1833	CCAAGCTCAGACGGATCCGA	PO	mir-127-Ruvkun
354239	1896	TACTTTCGGTTATCTAGCTTTA	PO	mir-131-Ruvkun
354240	1846	CGGCCTGATTCACAACACCAGCT	PO	mir-138-Ruvkun
354242	1789	ACGCCAATATTTACGTGCTGCTA	PO	mir-16-Ruvkun
354243	1852	CTATCTGCACTAGATGCACCTTA	PO	mir-18-Ruvkun
354244	1779	ACAGCTGCTTTTGGGATTCCGTTG	PO	mir-191-Ruvkun
354245	1891	TAACCGATTTCAGATGGTGCTA	PO	mir-29a-Ruvkun
354246	1813	ATGCTTTGACAATACTATTGCACTG	PO	mir-301-Ruvkun
354248	1804	AGCTGAGAGTGTAGGATGTTTACA	PO	mir-30c-Ruvkun
354250	1835	CCAGCAGCACCTGGGGCAGTGG	PO	mir-324-3p-Ruvkun
354251	1899	TATGGCAGACTGTGATTTGTTG	PO	mir-7-1*-Ruvkun
354253	1822	CACATAGGAATGAAAAGCCATA	PO	mir-135b (Ruvkun)
354254	1895	TACTAGACTGTGAGCTCCTCGA	PO	mir-151* (Ruvkun)
354255	1885	GGCTATAAAGTAACTGAGACGGA	PO	mir-340 (Ruvkun)
354256	1923	TTCTAGGATAGGCCCAGGGGC	PO	mir-331 (Ruvkun)
354258	1817	CAATCAGCTAACTACACTGCCT	PO	miR-34c (RFAM)
354259	1837	CCCCTATCACGATTAGCATTAA	PO	miR-155 (RFAM)
354260	1910	TCCATCATTACCCGGCAGTATT	PO	miR-200c (RFAM)
354261	1818	CAATCAGCTAATGACACTGCCT	PO	miR-34b (RFAM)
354264	1917	TGAGCTCCTGGAGGACAGGGA	PO	mir-339-1 (RFAM)
354265	1925	TTTAAGTGCTCATAATGCAGT	PO	miR-20* (human)
354266	1926	TTTTCCCATGCCCTATACCTCT	PO	miR-202 (human)
354267	1856	CTTCAGCTATCACAGTACTGTA	PO	miR-101b
354268	1894	TACCTGCACTGTTAGCACTTTG	PO	miR-106a
354269	1772	ACAAGTGCCCTCACTGCAGT	PO	miR-17-3p
354270	1859	GAACAGGTAGTCTAAACACTGGG	PO	miR-199b (mouse)
354271	1915	TCTTCCCATGCGCTATACCTCT	PO	miR-202 (mouse)
354272	1808	AGGCAAAGGATGACAAAGGGAA	PO	miR-211 (mouse)
354273	1809	ATCCAGTCAGTTCCTGATGCAGTA	PO	miR-217 (mouse)
354274	1888	TAAACGGAACCACTAGTGACTTA	PO	miR-224 (RFAM-mouse)
354275	1758	AACAAAATCACAAGTCTTCCA	PO	miR-7b
354276	1919	TGTAAGTGCTCGTAATGCAGT	PO	miR-20* (mouse)
354277	1778	ACACTTACTGGACACCTACTAGG	PO	mir-325 (human)
354278	1777	ACACTTACTGAGCACCTACTAGG	PO	mir-325 (mouse)
354279	1877	GCTGGAGGAAGGGCCCAGAGG	PO	mir-326 (human)
354280	1794	ACTGGAGGAAGGGCCCAGAGG	PO	mir-326 (mouse)
354281	1755	AAAGAGGTTAACCAGGTGTGTT	PO	mir-329-1 (human)
354282	1750	AAAAAGGTTAGCTGGGTGTGTT	PO	mir-329-1 (mouse)
354283	1914	TCTCTGCAGGCCGTGTGCTTTGC	PO	mir-330 (human)
354284	1913	TCTCTGCAGGCCCTGTGCTTTGC	PO	mir-330 (mouse)
354285	1757	AAAGGCATCATATAGGAGCTGGA	PO	mir-337 (human)
354286	1756	AAAGGCATCATATAGGAGCTGAA	PO	mir-337 (mouse)
354287	1872	GCCCTGGACTAGGAGTCAGCA	PO	mir-345 (human)
354288	1868	GCACTGGACTAGGGGTCAGCA	PO	mir-345 (mouse)
354289	1799	AGAGGCAGGCATGCGGGCAGACA	PO	mir-346 (human)
354290	1798	AGAGGCAGGCACTCGGGCAGACA	PO	mir-346 (mouse)
354292	1841	CCTCAAGGAGCCTCAGTCTAGT	PO	miR-151 (rat)
354293	1797	AGAGGCAGGCACTCAGGCAGACA	PO	miR-346 (rat)

354294	1819	CAATCAGCTAATTACACTGCCTA	PO	miR-34b (mouse)
354295	1842	CCTCAAGGAGCTTCAGTCTAGT	PO	miR-151 (human)

It is also understood that, although many of the oligomeric compounds listed in Tables 64-66 have been designed to target or mimic a particular miRNA from humans, for example, that oligomeric compound may also target or mimic other miRNAs from mammals, such as those from rodent species, for example. It is also understood that these miRNAs and mimics can serve as the basis for several variations of nucleic acid oligomeric compounds, including compounds with chemical modifications such as uniform or chimeric 2'-MOE oligomeric compounds, as well as LNAs and PNAs; such oligomeric compounds are also within the scope of the invention. One such non-limiting example is ISIS Number 351104 (CTAGTGGTCCTAAACATTTCAC; SEQ ID NO: 296), which is a PNA oligomeric compound targeted to the human mir-203 miRNA.

Example 35: Targeting miRNAs in introns and exons

By mapping the coding sequences of miRNAs onto genomic contigs (which sequence information is available from public databases, such as GenBank and Locus Link), and identifying loci at which other reported gene coding sequences also co-map, it was observed that miRNAs can be encoded within the exons or introns of other genes. The oligomeric compounds of the present invention can be designed to target introns and exons of these genes. For example, the oligomeric compounds of the present invention can be designed to target introns or exons of the genes listed in Table 67. More specifically, these oligomeric compounds can target the miRNAs encoded within the exons or introns of these genes listed in Table 67.

Table 67

Oligomeric compounds targeting miRNAs found within introns or exons

ISIS #	SEQ ID NO:	Locus containing miRNA	Sequence of locus	Locus SEQ ID NO
327873	291	Ubiquitin protein ligase WWP2 containing mir-140	GAATTCGCGGCCGCGTCGACCGCTTCTGTGGCC ACGGCAGATGAAACAGAAAGGCTAAAGAGGGCT GGAGTCAGGGGACTTCTCTTCCACCAGCTTCAC GGTGATGATATGGCATCTGCCAGCTCTAGCCGG GCAGGAGTGGCCCTGCCTTTTGAGAAGTCTCAG CTCACTTTGAAAGTGGTGTCCGCAAAGCCCAAG GTGCATAATCGTCAACCTCGAATTAACTCCTAC GTGGAGGTGGCGGTGGATGGACTC	1928
327874	292	hypothetical protein FLJ13189	ATGCGAGGCTGGGGCCGGTTGCCTACCGGCCGC TTCTCGCCGAGGCAGTCCAGACTTTTCCCCCGG CGGTGCCCGCTCCAAGACAGCATCTGTCAACGC TCCTCTTCTCCCCTCCTCCTCCTGCCGGGCCGG GCTCCGCCGGCTGCGGCCGAGAGGACGCGGGAC CCGGCGCGGTGAGCCCATCAGCTGTCAGGCGAG	1929

			CGGCGAAGCGGCTGGAGGGCGGCGAGAGACACA CAAAGAACGCGGTGGGCGGCGGCG	
327877	295	deleted in lymphocytic leukemia, 2 containing mir-16-1 and mir-15a-1	GATGCCTGATCTCATCAATCTAGCGGGAGAGAC AGGATAACCTGTCCGAGAGTATAGCGCCACTTA TGACTCCGCCGGAAAAATTACTTTAAAAATCGC CAAAAATTACTTGGAGCAAAGGGCAGTCCGGCG GCGTTCGCCAAGGTGGCGCAGTCGGTTTTGACC TGTAGCAGAGAACCAATTCTGGAGAACAGCCTC ACTTCTTTGATTGAATACTTACATAATGCATTG GAACATGACATGAGATTAAGGTTT	1930
327877	295	SMC4 (structural maintenance of chromosomes 4, yeast)-like 1 containing mir-16-3 and mir-15b	TTTTTATTTTTTTCGAGTGAAGGACCCGGAGCC GAAACACCGGTAGAGCGGGGAGGTGGGTACTAC ACAACCGTCTCCAGCCTTGGTCTGAGTGGACTG TCCTGCAGCGACCATGCCCCGTAAAGGCACCCA GCCCTCCACTGCCCGGCGCAGAGAGGAAGGGCC GCCGCCGCCGTCCCCTGACGGCGCCAGCAGCGA CGCGGAGCCTGAGCCGCCGTCCGGCCGCACGGA GAGCCCAGCCACCGCCGCAGAGAC	1931
327879	297	heterogeneous nuclear ribonucleoprotein K containing mir-7-1	AGGGCGCTCCAGGCGACACGATTGCAGACGCCA TTATCCTCTGTTTCTCTGCTGCACCGACCTCGA CGTCTTGCCTGTGTCCCACTTGTTCGCGGCCTA TAGGCTACTGCAGCACTGGGGTGTCAGTTGTTG GTCCGACCCAGAACGCTTCAGTTGTGCTCTGCA AGGATATATAATAACTGATTGGTGTGCCCGTTT AATAAAAGAATATGGAAACTGAACAGCCAGAAG AAACCTTCCCTAACACTGAAACCA	1932
327879	297	pituitary gland specific factor 1a containing mir-7-3	ACCTGCATCTGCCAACAAGACTGGAAGCAGGTG AGGCACACAGAGGGGGAGGCCCGCAGCTGCGTG GGAGGAGGGGTGGTCTGAGGGACGTGGGATGCC GGGAATGAGGCTGGTTTGCAGGTTGGCGCATGG ACATTTTCCCAGAAAGGGACAGAGACGGCGAAG TTTGACGGTCTGGAAAGCAGAGACCAGCAGGGC TGACTGCTTGGGAGCACCAAATATCCGGACAGC GCCTCTCGGGAGGTCCGAGAAGAG	1933
327881	299	R3H domain (binds single-stranded nucleic acids) containing containing mir-128a	TGCCGCTGGAGCCGGTGTCCGGGCTGGTGATGG GGTTAATTCCCTTTCGTAAGACTCTTACTTGCA CCCACCCAGCCCCGCCGTCGCCCCGCCGCGCCG CGCTCCAACCGCCTCCTCCTCCTCAGTAACGCG GGCCACGGAAAGGTATGATATATTTGATCCAAG ACAGTCCATTCCAGTCCGGGAATCTACAGTGGT GACAAGGACATGGGACTCCTCCTGCCAGATTAC AGATGGTTCACTACAGTTGACATC	1934
327882	300	protein tyrosine phosphatase, receptor type, N polypeptide 2 containing mir-153-2	CAGGCGGCGGGGATGGGGCCGCCGCTCCCGCTG CTGCTGCTGCTACTGCTGCTGCTGCCGCCACGC GTCCTGCCTGCCGCCCCTTCGTCCGTCCCCCGC GGCCGGCAGCTCCCGGGGCGTCTGGGCTGCCTG CTCGAGGAGGGCCTCTGCGGAGCGTCCGAGGCC TGTGTGAACGATGGAGTGTTTGGAAGGTGCCAG AAGGTTCCGGCAATGGACTTTTACCGCTACGAG GTGTCGCCCGTGGCCCTGCAGCGC	1935
327882	300	protein tyrosine phosphatase, receptor type, N containing mir-153-1	CAGCCCCTCTGGCAGGCTCCCGCCAGCGTCGCT GCGGCTCCGGCCCGGGAGCGAGCGCCCGGAGCT CGGAAAGATGCGGCGCCCGCGGCGGCCTGGGGG TCTCGGGGGATCCGGGGGTCTCCGGCTGCTCCT CTGCCTCCTGCTGCTGAGCAGCCGCCCGGGGGG CTGCAGCGCCGTTAGTGCCCACGGCTGTCTATT TGACCGCAGGCTCTGCTCTCACCTGGAAGTCTG TATTCAGGATGGCTTGTTTGGGCA	1936
327883	301	chromosome 9 ORF3 containing mir-23b, mir-24-2 and	CTCCAGGCACACGCAGCACACACAGCACATGCA CCACACGTAGCACACACACTGCATGCAGCACAC ACACACCAGAGGACGCACCACACAGAGCACGCA	1937

		mir-27b	CAGCACACACCACACAGCGCACGCACCACACAG AGCACACGCGGCACACACAGCACACACAGCGCA CGCACCACGCAGAGCACACACGGCACATGCAGC ATACACACCAAACAGCGCATGCACCACACAGAG CACACGCGGCACACGCAGCACACA	
327892	310	Transcriptional activator of the c-fos promoter containing mir-131-1/miR-9	CTCCTCACAGAAGCCTGGAGCTGGGCATCCAAG AAGAAGCAGCCTCATTTGTTTTCTGGTGTCATC GTAGGTGGCCACCTATGGCTTTTGGGAATGTAA AAAGGGCAGCTCTCTGGCATGTTCCTGACTGAG GATCTCATAACATTTAACTTGAGGAACTTCCTC CTTTTCCAGCTTTGGGAGTCAAGCTTCTCACCT GGGGCGGGTGGGTTCTGCACCACCCTCCCACCC TCCTTCCTCCGTGTGGACGATAGA	1938
327896	314	hypothetical protein MGC14376 containing mir-22	GGCACGAGGTAGAGAAGCAGGGGATAGACTCAT AGGCTGCAACAAAGGTGACTCTGTCCCTGGACA CTGCCTCCGTACTTTCTCCTTGCTTCACTGGCC ACAGCATCTCCCTCCAGCCCTCGCTATGTGCCT CTGCCATCTTCACCCATCATGGAGCAGAGGTGA GGAGAGGCAGCCTGGGAATATGGAGACCAGTGA AGGACCAGGCCTGGAGAGCACAGGGTCCTACCT GGGCATCCAGCAGAGGAGCCCCTA	1939
327906	324	hypothetical protein FLJ11729 containing mir-103-2	ATGCTGGGGGAGGGGCTGGCGGCCTCGACGGCA GCTGCGGAACTAGGCCGAGGGACAAAGGCTAAG TTTTTCCATGGTTTGGACTGGATATCGGTGGAA CTCTGGTCAAGCTGGTATATTTTGAACCCAAAG ACATCACTGCTGAAGAAGAAGAGGAAGAAGTGG AAAGTCTTAAAAGCATTCGGAAGTACCTGACCT CCAATGTGGCTTATGGGTCTACAGGCATTCGGG ACGTGCACCTCGAGCTGAAGGACC	1940
327906	324	hypothetical protein FLJ12899 containing mir-103-1	AGTGCGGCGGCGCCGCCTCTGCTCTCAGTGCCC CGGATCGGAGGCCGTCCATCGCCCCTCGGGCCG ACGCCATGAAGATCAAAGATGCCAAGAAACCCT CTTTCCCATGGTTTGGCATGGACATTGGGGGAA CTCTAGTAAAGCTCTCGTACTTTGAACCTATTG ATATCACAGCAGAGGAAGAGCAAGAAGAAGTTG AGAGTTTAAAAAGTATTCGGAAATATTTGACTT CTAACGTGGCATATGGATCCACCG	1941
327907	325	conserved gene amplified in osteosarcoma containing miR-26a-2	CTATGATGGCCAGCCACCGCTGAGAGCACGAAG CTGCTGCTGGCTGGCATTTTTCTCTAGCGTTGT GGTGCCACCTNCCCTTATNACCTTGGGACAAGA AGGGAAGGTGGCCATTGTCTTTCTCTTTGGAAT CATAAAGTGGAACAGAGTCCCCAGAACTCATGT GGCCATTTCCGCCAGCATCACTCCCCGGTGCCT ATGGGGTCCCGGTGTACCTAAAGGGAGAAGGAC CCCATGTGCTAGCCAGAAATATAC	1942
327907	325	HYA22 protein containing miR-26a-1	CCCCTCACCCCACTCAACTGCCCCGGGCCCCCG CGCGCGCGGCCGCCCCTCCACTCACCCTGTGTC GGCCCCGCTCCCCTCTCCCCCACCAGGCGAGCA GGCGAGCGGGCAGAGCCCGCGGCGGAGGTCGGC GCGGCTCCGGGGTTCATGGTGACGAGGCGGCGG CCGCTCGAGCCCAGCGGCGGCGGGCGGCGGGAG CTGGGGCGCGGGCCCGGGCCGCCTCTCCCAGAG CGCGGGGCCGGGCGGCGGGCGCGC	1943
327908	326	Sterol regulatory element binding transcription factor 2 containing mir-33a	CCGTCGGTGAGGCGGTGCCGGGCGGGGGTTGTC GGGTGTCATGGGCGGTGGCGACGGCACCGCCCC CGCGTCTCCCTGAGCGGGACGGCAGGGGGGGCT TCTGCGCTGAGCCGGGCGATGGACGACAGCGGC GAGCTGGGTGGTCTGGAGACCATGGAGACCCTC ACGGAGCTGGGCGACGAGCTGACCCTGGGAGAC ATCGACGAGATGCTGCAATTTGTCAGTAATCAA GTGGGAGAGTTCCCTGACTTGTTT	1944

327910	328	pantothenate kinase containing mir-107	GCACAATCTAAAGCTTGTATATATAATGGTAGT TTGTAAAGTGTACCTTCCCCACAGGACGCTGTG GGATGTAAATTTGTAGGTCGAGTTTACAGCTGG TTTTTCTTGACTGAAGCTCATTCAACTGGTTAC TTCTTTGTGGGTGTCTTTAATGAAGCTTATAAA TGGCAAAAAGCAAACATTCCCATGGTTTGGCAT GGACATCGGTGGAACGCTGGTTAAATTGGTGTA TTTCGAGCCGAAGGATATTACAGC	1945
327912	330	upstream regulatory element binding protein 1 containing mir-98 and let-7f-2	ATGTTTAACCCTATGTATGCCTTGTTCCGTACC TCACCTGGTGATCGAGTCACCTACACCATCAAT CCATCTTCCCACTGCAACCCCAACCACCTCAGC TACTTCAAGTTTGTCGGACGCATTGTGGCCAAA GCTGTATATGACAACCGTCTTCTGGAGTGCTAC TTTACTCGATCCTTTTACAAACACATCTTGGGC AAGTCAGTCAGATATACAGATATGGAGAGTGAA GATTACCACTTCTACCAAGGTCTG	1946
327915	333	slit (Drosophila) homolog 3 containing mir-218-2	CAACAGCATCAGCATGCTGACCAATTACACCTT CAGTAACATGTCTCACCTCTCCACTCTGATCCT GAGCTACAACCGGCTGAGGTGCATCCCCGTCCA CGCCTTCAACGGGCTGCGGTCCCTGCGAGTGCT AACCCTCCATGGCAATGACATTTCCAGCGTTCC TGAAGGCTCCTTCAACGACCTCACATCTCTTTC CCATCTGGCGCTGGGAACCAACCCACTCCACTG TGACTGCAGTCTTCGGTGGCTGTC	1947
327915	333	slit (Drosophila) homolog 2 containing mir-218-1	CAGAGCAGGGTGGAGAGGGCGGTGGGAGGCGTG TGCCTGAGTGGGCTCTACTGCCTTGTTCCATAT TATTTTGTGCACATTTTCCCTGGCACTCTGGGT TGCTAGCCCCGCCGGGCACTGGGCCTCAGACAC TGCGCGGTTCCCTCGGAGCAGCAAGCTAAAGAA AGCCCCCAGTGCCGGCGAGGAAGGAGGCGGCGG GGAAAGATGCGCGGCGTTGGCTGGCAGATGCTG TCCCTGTCGCTGGGGTTAGTGCTG	1948
327923	341	cyclic AMP-regulated phosphoprotein, 21 kD containing mir-128b	GTGATTTGCTGGAATTGTCATTAGTGTTGACGA TGTGTCACACTGTGTAAGGGAATCGCATGGAGA TGGGCATTCCGAACTGTTAATGGGGACATGGGA CTCCAGTTGTCTCTGATCACTTGTGTGGATTTT CCTGGCGTAGAACGACAGAAGCCGCTAGTAAGT CGCCAAGACCTACAGCAGGAATTCTGCACCAAA GGGCATAAAATCTTGTTATTTAATTTGCATCT GGGAGAATGTCTGAGCAAGGAGAC	1949
327932	350	transient receptor potential cation channel, subfamily M, member 3 containing mir-204	TAAATGAAAGCAACAGGAGCTGCTCCGGGGACT GCTTTTGCCAGCACCCAGAATCAGTGCTCAGGC TCAGAAATCCTGGATAGAAAGAGCATTTTATAA AAGAGAATGTGTCCACATCATACCCAGCACCAA AGACCCCCATAGGTGTTGCTGTGGGCGTCTGAT AGGCCAGCATGCTGGCCTCACCCCCAGTATCTC CGTGCTTCAGAATGAGAAAAATGAAAGTCGCCT CTCCCGAAATGACATCCAGTCTGA	1950
327946	364	melastatin 1 containing mir-211	GGCTGAAAGAGCCTGAGCTGTGCCTCTCCATTC CACTGCTGTGGCAGGGTCAGAAATCTTGGATAG AGAAAACCTTTTGCAAACGGGAATGTATCTTTG TAATTCCTAGCACGAAAGACTCTAACAGGTGTT GCTGTGGCCAGTTCACCAACCAGCATATCCCCC CTCTGCCAAGTGCAACACCCAGCAAAAATGAAG AGGAAAGCAAACAGGTGGAGACTCAGCCTGAGA AATGGTCTGTTGCCAAGCACACCC	1951
327947	365	RNA cyclase homolog containing mir-101-3	CTCAGCTACGCAGGTGCAACTTCTTGCGCCAAC GTCTGGTCCTGTCTACCCTGAGCGGGCGCCCCG TCAAAATCCGAAAGATTCGGGCCAGAGACGACA ACCCGGGCCTCCGAGATTTTGAAGCCAGCTTCA TAAGGCTATTGGACAAATAACGAATGGTTCTCG	1952

			AATTGAAATAAACCAAACAGGAACAACCTTATA TTATCAGCCTGGCCTCCTGTATGGTGGATCTGT GGAACATGACTGTAGCGTCCTTCG	
327954	372	CGI-120 protein containing mir-148b	TTTTGCGGCTCCACGTCGGCACCAGCTGCGGGG CAAGATGGAGGCGCTGATTTTGGAACCTTCCCT GTATACTGTCAAAGCCATCCTGATTCTGGACAA TGATGGAGATCGACTTTTTGCCAAGTACTATGA CGACACCTACCCCAGTGTCAAGGAGCAAAAGGC CTTTGAGAAGAACATTTTCAACAAGACCCATCG GACTGACAGTGAAATTGCCCTCTTGGAAGGCCT GACAGTGGTATACAAAAGCAGTAT	1953
327963	381	nuclear LIM interactor-interacting factor containing mir-26b	CGCCTAGCCGCGCCGGTCCCAGAAGTGGCGAAA GCCGCAGCCGAGTCCAGGTCACGCCGAAGCCGT TGCCCTTTTAAGGGGGAGCCTTGAAACGGCGCC TGGGTTCCATGTTTGCATCCGCCTCGCGGGAAG GAAACTCCATGTTGTAACAAAGTTTCCTCCGCG CCCCCTCCCTCCCCCTCCCCCCTAGAACCTGGC TCCCCTCCCCTCCGGAGCTCGCGGGGATCCCTC CCTCCCACCCCTCCCCTCCCCCCC	1954
327964	382	COPZ2 for nonclathrin coat protein zeta-COP containing mir-152	GGCGGCGAGCGGAATGCAGCGGCCCGAGGCCTG GCCACGTCCGCACCCGGGGGAGGGGGCCGCGGC GGCCCAGGCCGGGGGCCCGGCGCCGCCTGCTCG AGCCGGGGAGCCCTCGGGGCTGCGGTTGCAGGA ACCTTCCCTCTACACCATCAAGGCTGTTTTCAT CCTAGATAATGACGGGCGCCGGCTGCTGGCCAA GTATTATGATGACACATTCCCCTCCATGAAGGA GCAGATGGTTTTCGAGAAAAATGT	1955
327967	385	hypothetical protein PRO2730 containing let-7g	GGCTGGAAGGTTTAGCAGCAGCCTGGTGCAGTG CCCTGTCATCAAGACAAACCCACGGTCCTCCTG GGTGCCTACCAAGCTTGGTTTGTACAAAAGCAA GGTGGGAGTCTATTTTTGTACATGAGATACATC ACACTTACCTGTGGGCCAGTATTGTGAAGTGAG TCTGAGTTGTTTACACTGATGCCTTCCCTGCCC ACCACAAATTGTGTACATAGTCTTCAGATGATA CCACCCCTTTCCCCAGCTCCCAAC	1956
327968	386	sterol regulatory element-binding protein-1/ mir-33b	TAACGAGGAACTTTTCGCCGGCGCCGGGCCGCC TCTGAGGCCAGGGCAGGACACGAACGCGCGGAG CGGCGGCGGCGACTGAGAGCCGGGGCCGCGGCG GCGCTCCCTAGGAAGGGCCGTACGAGGCGGCGG GCCCGGCGGGCCTCCCGGAGGAGGCGGCTGCGC CATGGACGAGCCACCCTTCAGCGAGGCGGCTTT GGAGCAGGCGCTGGGCGAGCCGTGCGATCTGGA CGCGGCGCTGCTGACCGACATCGA	1957
328089	391	talin 2 containing hypothetical miR-13/miR-190	GGTTCCCAGGCACAGGAACCAATCCTGGTCTCA GCCAAGACCATGCTGGAGAGTTCATCGTACCTC ATTCGCACTGCACGCTCTCTGGCCATCAACCCC AAAGACCCACCCACCTGGTCTGTACTGGCTGGA CATTCCCATACAGTGTCCGACTCCATCAAGAGT CTCATCACTTCTATCAGGGACAAGGCCCCTGGA CAGAGGGAGTGTGATTACTCCATCGATGGCATC AACCGGTGCATCCGGGACATCGAG	1958
328091	393	calcitonin receptor containing hypothetical miRNA 30	CAGAATTCCAGGACAAAGAGATCTTCAAAAATC AAAAATGAGGTTCACATTTACAAGCCGGTGCTT GGCACTGTTTCTTCTTCTAAATCACCCAACCCC AATTCTTCCTGCCTTTTCAAATCAAACCTATCC AACAATAGAGCCCAAGCCATTTCTTTACGTCGT AGGACGAAAGAAGATGATGGATGCACAGTACAA ATGCTATGACCGAATGCAGCAGTTACCCGCATA CCAAGGAGAAGGTCCATATTGCAA	1959
328092	394	glutamate receptor,	TGACGACTCCTGAGTTGCGCCCATGCTCTTGTC AGCTTCGTTTTAGGCGTAGCATGGCCAGGCAGA	1960

		ionotrophic, AMPA 3/ hypothetical miRNA-033	AGAAAATGGGGCAAAGCGTGCTCCGGGCGGTCT TCTTTTTAGTCCTGGGGCTTTTGGGTCATTCTC ACGGAGGATTCCCCAACACCATCAGCATAGGTG GACTTTTCATGAGAAACACAGTGCAGGAGCACA GCGCTTTCCGCTTTGCCGTGCAGTTATACAACA CCAACCAGAACACCACCGAGAAGC	
328093	395	myosin, heavy polypeptide 7B, cardiac muscle, beta containing hypothetical miRNA 039	AGTTCATCCGCATTCACTTTGGTCCCTCTGGGA AGCTGGCATCCGCGGATATTGACAGCTATCTCC TGGAGAAGTCGCGGGTGATCTTCCAGTTGCCTG GTGAGCGCAGCTACCATGTCTACTACCAGATCC TCTCAGGGAGGAAGCCAGAGCTGCAGGACATGC TGCTTCTGTCTATGAACCCCTATGACTACCACT TCTGCAGCCAGGGCGTCATCACCGTGGACAACA TGAATGATGGGGAGGAGCTCATCG	1961
328101	403	LOC 114614/ hypothetical miRNA-071	AGCGGAGCCCCGAGCCGCCCGCAGAGCAAGCGC GGGGAACCAAGGAGACGCTCCTGGCACTGCAGA TAACTTGTCTGCATTTCAAGAACAACCTACCAG AGACCTTACCTGTCACCTTGGCTCTCCCACCCA ATGGAGATGGCTCTAATGGTGGCACAAACCAGG AAGGGGAAATCTGTGGTTTAAATTCTTTATGCC TCATCCTCTGAGTGCTGAAGGCTTGCTGTAGGC TGTATGCTGTTAATGCTAATCGTG	1962
328104	406	dachshund (Drosophila) homolog containing hypothetical miRNA 083	GCGGCCGCGAGCAACGGCAGCGGCGGCGGCGGC GGCGGCATCAGCGCTGGCGGCGGCGTCGCTTCC AGCACCCCCATCAACGCCAGCACCGGCAGCAGC AGCAGCAGCAGTAGCAGCAGCAGCAGCAGCAGC AGTAGTAGCAGCAGCAGCAGTAGCAGCAGCAGC TGCGGCCCCCTCCCCGGGAAACCCGTGTACTCA ACCCCGTCCCCAGTGGAAAACACCCCTCAGAAT AATGAGTGCAAAATGGTGGATCTG	1963
328105	407	DiGeorge syndrome critical region gene 8/ hypothetical miRNA-088	TCTCAGCGGACTTGTGCATGTTAGCTGTGTAGA TTTATGTGAGGGCTTGTAAAACTCTGGTCTTGT AAACTAGTCTTAAGCGCTTTTAATATGGAGACA GATGAGAGCCCCTCTCCGCTCCCGTGTGGGCCC GCAGGAGAAGCGGTGATGGAGAGCCGAGCTCGC CCCTTCCAAGCGCTGCCCCGTGAGCAGTCTCCA CCACCTCCCCTGCAAACGTCCAGTGGTGCAGAG GTAATGGACGTTGGCTCTGGTGGT	1964
328111	413	hypothetical protein FLJ21016, containing hypothetical miRNA 111	CTACGTGCAAAAGCAGAATGGGAAGGCTAAGGG ACAGCTTCCCGATCTAAACTATTGGATAAACTT CAGACCTATTTACCACCATCAGTGATGCTTCCC CCACGGCGTTTACAGACTCTCCTGCGGCAGGCG GTGGAACTACAAAGGGATCGGTGCCTATATCAC AATACCAAACTTGATAATAATCTAGATTCTGTG TCTCTGCTTATAGACCATGTTTGTAGTAGGAGG CAGTTCCCATGTTATACGCAGCAG	1965
328117	419	collagen, type I, alpha 1/ hypothetical miRNA-144	agcagacgggagtttctcctcggggtcggagca ggaggcacgcggagtgtgaggccacgcatgagc ggacgctaaccccctccccagccacaaagagtc tacatgtctagggtctagacatgttcagctttg tggacctccggctcctgctcctcttagcggcca ccgccctcctgacgcacggccaagaggaaggcc aagtcgagggccaagacgaagacatcccaccaa tcacctgcgtacagaacggcctca	1966
328119	421	hypothetical protein HH114 containing hypothetical miRNA 154	GGCACGAGGCTGGTCCCTGGCCCAACATGATAC TGACCAAAGCTCAGTACGACGAGATAGCCCAGT GCCTAGTGTCTGTGCCGCCTACCAGGCAGAGCC TGAGGAAGCTGAAGCAGAGGTTTCCCAGTCAAT CGCAGGCCACTCTGCTGAGCATCTTCTCCCAGG AGTACCAGAAACACATTAAAAGAACACATGCCA AACATCATACTTCGGAAGCAATTGAAAGTTATT	1967

			ACCAGAGGTACCTGAATGGAGTGG	
328120	422	sprouty (Drosophila) homolog 4 containing hypothetical miRNA 156	GCGAGCTGAGCTGACAGCGCGGAGCTGGCGCTG TGGAGCGCAGGGAGCCTTGCCGGTTCCTCCGAC CGGCGTCTGCGAGTACAGCGGCGGCTAACCTGC CCCGGCTTCAGGATTTACACAGACGTGGGGCGA TGCTTGTGACCCTGCAGCTCCTCAAACCAGCCT GTATTGAGCGGTTTGCAGCCTGATGCTCAGCCC CCTCCCCACAGGGCCCCTAGAAGCCTGTTTCTC CGTACAGTCCAGGACCTCCAGCCC	1968
328124	426	ribosomal protein L5/ hypothetical miRNA 168-2	GAGCAGCGGACGCCGGTCTCTGTTCCGCAGATG GGGTTTGTTAAAGTTGTTAAGAATAAGGCCTAC TTTAAGAGATACCAAGTGAAATTTAGAAGACGA CGAGAGGGTAAAACTGATTATTATGCTCGGAAA CGCTTGGTGATACAAGATAAAAATAAATACAAC ACACCCAAATACAGGATGATAGTTCGTGTGACA AACAGAGATATCATTTGTCAGATTGCTTATGCC CGTATAGAGGGGGATATGATAGTC	1969
328125	427	forkhead box P2/hypothetical miRNA 169	ATGATGCAGGAATCTGCGACAGAGACAATAAGC AACAGTTCAATGAATCAAAATGGAATGAGCACT CTAAGCAGCCAATTAGATGCTGGCAGCAGAGAT GGAAGATCAAGTGGTGACACCAGCTCTGAAGTA AGCACAGTAGAACTGCTGCATCTGCAACAACAG CAGGCTCTCCAGGCAGCAAGACAACTTCTTTTA CAGCAGCAAACAAGTGGATTGAAATCTCCTAAG AGCAGTGATAAACAGAGACCACTG	1970
328127	429	glutamate receptor, ionotropic, AMPA 2 / hypothetical miRNA 171	AGGGATTCTTCTGCCTCCACTTCAGGTTTTAGC AGCTTGGTGCTAAATTGCTGTCTCAAAATGCAG AGGATCTAATTTGCAGAGGAAAACAGCCAAAGA AGGAAGAGGAGGAAAAGGAAAAAAAAAGGGGTA TATTGTGGATGCTCTACTTTTCTTGGAAATGCA AAAGATTATGCATATTTCTGTCCTCCTTTCTCC TGTTTTATGGGGACTGATTTTTGGTGTCTCTTC TAACAGCATACAGATAGGGGGGCT	1971
328128	430	potassium large conductance calcium-activated channel, subfamily M, alpha member 1 containing hypothetical miRNA 172	GGCGGCGGAGGCAGCAGTCTTAGAATGAGTAGC AATATCCACGCGAACCATCTCAGCCTAGACGCG TCCTCCTCCTCCTCCTCCTCCTCTTCCTCTTCT TCTTCTTCCTCCTCCTCTTCCTCCTCGTCCTCG GTCCACGAGCCCAAGATGGATGCGCTCATCATC CCGGTGACCATGGAGGTGCCGTGCGACAGCCGG GGCCAACGCATGTGGTGGGCTTTCCTGGCCTCC TCCATGGTGACTTTCTTCGGGGGC	1972
328131	433	hypothetical protein FLJ20307	ATGTATTGAAAGGGTATGTATAGGTGCAAATGA TAAAAAAGAAGAGTTTGATGTTTCCGGAAATGG AAGGATTGAAGGCCATATAGGTGTGCAATTACA AGAGCATTCCTATCTTGAGAAGGGCATGCTGGC GTCTGAGGAACTGTCACAGTCTGGTGGTAGCAC CAAAGATGATGAATTAGCTTCAACCACTACTCC AAAGAGAGGGAGACCTAAAGGTAACATCTCACG GACGTGTTCACACTGTGGCCTTTT	1973
328135	437	cezanne 2/ hypothetical miRNA-180	GTTCTCTCGCTCAGGTCTCTGCATGTAGTTGTC ACTTGCAGCTCCATTTCCATCACGTGGTAAAAT GCCCTTTCTCTTCTTTCCTGCAGATGGATGGTT TCTAGTGTGCTTCCAAACCCCACCTCGGCTGAG TGTTGGGCAGCACTTCTACATGATCCTATGACT CTTGATATGGACGCAGTCCTGTCAGACTTTGTT CGGTCCACGGGGGCAGAACCTGGTCTGGCCAGA GACCTGCTGGAAGGCAAAAACTGG	1974
328137	439	tight junction protein 1 (zona occludens 1)/	TCCGGGTATGGATGTCAATCTTTTGTCTACAAT GTGAATACATTTATCCTTCGGGGACCATCAAGA CTTTCAGGAAAGGCCCCGCCTGTCTCTGCGCGG	1975

		hypothetical miRNA-183	CCACTTTGCTGGGACAAAGGTCAACTGAAGAAG TGGGCAGGCCCGAGGCAGGAGAGATGCTGAGGA GTCCATGTGCAGGGGAGGGAAAGGGAGAGGCAG TCAGGGAGAGGAGGAGGAGGTACCGCCAGAAGG GGATCCTCCCGCTCCGAAAACCAG	
340343	1780	gamma-aminobutyric acid (GABA) A receptor, alpha 3 containing miR-105 (Mourelatos) and miR-105-2	GAATTCCTTGTTTCAGTTCATTCATCCTTCTCT CCTTTCCGCTCAGACTGTAGAGCTCGGTCTCTC CAAGTTTGTGCCTAAGAAGATGATAATCACACA AACAAGTCACTGTTACATGACCAGCCTTGGGAT TCTTTTCCTGATTAATATTCTCCCTGGAACCAC TGGTCAAGGGGAATCAAGACGACAAGAACCCGG GGACTTTGTGAAGCAGGACATTGGCGGGCTGTC TCCTAAGCATGCCCCAGATATTCC	1976
340348	848	Minichromosome maintenance deficient (S. cerevisiae) 7 containing miR-93 (Mourelatos) and miR-25 and miR-94	GACGTTTCGCGCCAATTTCGGTTGGCCGGCCAC AGTCCACCGCGCGGAGATTCTCAGCTTCCCCAG GAGCAAGACCTCTGAGCCCGCCAAGCGCGGCCG CACGGCCCTCGGCAGCGATGGCACTGAAGGACT ACGCGCTAGAGAAGGAAAAGGTTAAGAAGTTCT TACAAGAGTTCTACCAGGATGATGAACTCGGGA AGAAGCAGTTCAAGTATGGGAACCAGTTGGTTC GGCTGGCTCATCGGGAACAGGTGG	1977
340350	855	KIAA1808 protein containing miR-95 (Mourelatos)	CGAGGTGCTGCGGGTGCAGGACAAGTACTTCCA CATCAAGTGCTTCGTCTGTAAAGCATGTGGCTG CGACCTGGCCGAGGGCGGCTTCTTCGTGCGGCA GGGCGAGTACATCTGCACGCTGGACTACCAGAG GCTCTACGGCACCCGCTGCTTCAGCTGCGACCA GTTCATTGAGGGTGAGGTGGTGTCGGCGCTGGG CAAGACCTACCACCCCGACTGCTTCGTGTGTGC CGTCTGCCGGCTGCCCTTCCCCCC	1978
340356	1853	LIM domain-containing preferred translocation partner in lipoma containing miR-28	GTCACTTTTATTTGGGGGTGTGGACAGCTGCTT TCCCAGGGGAGTACTTCTTACAGTGGGATTTCA AGACAAGATCGGCCTGAAGAAAAATTATATTTG TATATTTTTTAAAAAGTGGGAACTTTGAGGCTC AGAGACAGAGCAGAAGACAGAACCTGGTCTTCT GATTCCCTGTGTTCTGCTTTTTTCATTGTTCCA CTGGACGCTCATCAGAGGGAAGATCTTTTTCCT CAATTGATTCCAACAATGTCTCAC	1979
340360	1865	chromosome 9 open reading frame 5 containing miR-32	CGCCCCTCGGGGGCGGCTGTGGCGGAGGAACGA TGGCCGACGGCGGCGGCCCTAAGGAGGCGCCAA GCCTGCGGAGCTCTCCCGGGCCGGCGCCGCGGG TCCCGCGCGCGGTCGGGCCGAGTGGCGGTGGCG GGGAGACCCCGCGGACCGCGGCGCTGGCGCTGC GCTTCGACAAGCCCATTAAGCAGGCCTTCTACA ACACCGGGGCCGTGCTGTTCGTGTGCCTGTGCT GCGGCGCCGCGGTGCTGGTCTACT	1980
341785	854	glypican 1 containing miR-149	GGCTGCCCGAGCGAGCGTTCGGACCTCGCACCC CGCGCGCCCCGCGCCGCCGCCGCCGCCGGCTTT TGTTGTCTCCGCCTCCTCGGCCGCCGCCGCCTC TGGACCGCGAGCCGCGCGCGCCGGGACCTTGGC TCTGCCCTTCGCGGGCGGGAACTGCGCAGGACC CGGCCAGGATCCGAGAGAGGCGCGGGCGGGTGG CCGGGGGCGCCGCCGGCCCCGCCATGGAGCTCC GGGCCCGAGGCTGGTGGCTGCTAT	1981
341798	1871	Notch 4 like containing mir-123/mir-126	CCGCCTGGAGGCACAGGCCATGAGGGGCTCTCA GGAGGTGCTGCTGATGTGGCTTCTGGTGTTGGC AGTGGGCGGCACAGAGCACGCCTACCGGCCCGG CCGTAGGGTGTGTGCTGTCCGGGCTCACGGGGA TCCTGTCTCCGAGTCGTTCGTGCAGCGTGTGTA CCAGCCCTTCCTCACCACCTGCGACGGGCACCG GGCCTGCAGCACCTACCGAACCATCTATAGGAC CGCCTACCGCCGCAGCCCTGGGCT	1982

341800	1766	zinc finger protein 265 containing miR-186	ATGTCGACCAAGAATTTCCGAGTCAGTGACGGG GACTGGATTTGCCCTGACAAAAAATGTGGAAAT GTAAACTTTGCTAGAAGAACCAGCTGTAATCGA TGTGGTCGGGAGAAAACAACTGAGGCCAAGATG ATGAAAGCTGGGGGCACTGAAATAGGAAAGACA CTTGCAGAAAAGAGCCGAGGCCTATTTAGTGCT AATGACTGGCAATGTAAAACTTGCAGCAATGTG AATTGGGCCAGAAGATCAGAGTGT	1983
341801	1839	follistatin-like 1 containing miR-198	GGAGCTCCAACCTCCGCTTAGAGCTCGCTGCGG CCGTCCTGCCCCGTGCCCTCGGAGACCTGGACC GTACCACGATGTGGAAACGCTGGCTCGCGCTCG CGCTAGCGCTGGTGGCGGTCGCCTGGGTCCGCG CCGAGGAAGAGCTAAGGAGCAAATCCAAGATCT GTGCCAATGTGTTTTGTGGAGCTGGCCGGGAAT GTGCAGTCACAGAGAAAGGGGAACCCACCTGTC TCTGCATTGAGCAATGCAAACCTC	1984
341802	1806	hypothetical protein FLJ10496 containing miR-191	CCTTCCGGTCACCATGGCGACCAGGCGCCTTGG GGTCGGGGAGACGCTGGGGGCCCTCAACGCGGC CCTGGGGCCAGGCGGTCCGGTGTGGACCAAGGA GACGCGCACCCGCCACCTGCGTTCCCGAGACTT TCTGGCACCGCACCGCGCGCTGCAGGCGCGCTT CGATGACGGCCAGGTTCCGGAGCATTTGCTCCA TGCCCTCGCCTGCCTGCAGGGCCCCGGTGTGGC CCCGGTGCTGCGCTGCGCGCCGAC	1985
341808	1861	hypothetical protein DKFZp761P1121, containing miR-185	TCGGCGGCGGTGGCGGAGGCGACCTCGCGACCT GTGTCAGCAGAGCCGCCCTGCACCACCATGTGC ATCATCTTCTTTAAGTTTGATCCTCGCCCTGTT TCCAAAAACGCGTACAGGCTCATCTTGGCAGCC AACAGGGATGAATTCTACAGCCGACCCTCCAAG TTAGCTGACTTCTGGGGGAACAACAACGAGATC CTCAGTGGGCTGGACATGGAGGAAGGCAAGGAA GGAGGCACATGGCTGGGCATCAGC	1986
341809	1786	chloride channel 5 (nephrolithiasis 2, X-linked, Dent disease) containing miR-188	TGATGTGATATGGCTGCAAGTGCCTTTGACCCT TTTGTCTCCCTTCCATAAACTGAAATACCTAAG CTGCTCCAACCTCCTTTTTGTCTTTTGTTTCAT AAATCCTTTCCCATTGCACATCAACTCCTGTCT CTCTTTGTACTGTCACTCTCATCTGTTGCTTTC CATTCACACTGCCTTTAGCCACTCATCATTTTG TGCCTACACCACAGAAACCTCTGAATGTAATGG ATGTTCCTACCAGAGGACAAGTCG	1987
341812	1771	myosin, heavy polypeptide 6, cardiac muscle, alpha (cardiomyopathy, hypertrophic 1) containing miR-208	GAGGCTGTTAATGCCAAATGCTCCTCACTGGAG AAGACCAAGCACCGGCTACAGAATGAGATAGAG GACTTGATGGTGGACGTAGAGCGCTCCAATGCT GCTGCTGCTGCTCTGGACAAGAAGCAGAGGAAC TTTGACAAGATCCTGGCCGAGTGGAAGCAGAAG TATGAGGAGTCGCAGTCTGAGCTGGAGTCCTCA CAGAAGGAGGCTCGCTCCCTCAGCACAGAGCTC TTCAAGCTCAAGAACGCCTACGAG	1988
341813	938	phosphodiesterase 2A, cGMP-stimulated containing miR-139	CAGCAGAGCTGGATTGGGGTGTTGAGTCCAGGC TGAGTAGGGGGCAGCCCACTGCTCTTGGTCCCT GTGCCTGCTGGGGGTGCCCTGCCCTGAACTCCA GGCAGCGGGGACAGGGCGAGGTGCCACCTTAGT CTGGCTGGGGAGGCGGACGATGAGGAGTGATGG GGCAGGCATGCGGCCACTCCATCCTCTGCAGGA GCCAGCAGTACCCGGCAGCGCGACCGGCTGAGC CGCGGGGCCAGCAGGTCTTCCTCA	1989
344611	1785	mesoderm specific transcript (mouse) homolog containing mir-240* (Kosik)	CGGCCAGCACACCCCGGCACCTCCTCTGCGGCA GCTGCGCCTCGCAAGCGCAGTGCCGCAGCGCAC GCCGGAGTGGCTGTAGCTGCCTCGGCGCGGCTG CCGCCCTGCGCGGGCTGTGGGCTGCGGGCTGCG CCCCCGCTGCTGGCCAGCTCTGCACGGCTGCGG	1990

			GCTCTGCGGCGCCCGGTGCTCTGCAACGCTGCG GCGGGCGGCATGGGATAACGCGGCCATGGTGCG CCGAGATCGCCTCCGCAGGATGAG	
344615	1900	Apoptosis-associated tyrosine kinase containing mir-244* (Kosik)	CTCCAGACCTACCCAGAAAGATGCCCGGATGGA TCCTGCAGCTCCGTGGCTTTTCTGGGAAGCAGC GGCCCCTGCTCTCAAGAGACCCTGGCTCCTGAT GGTGGCCCCAAGGTTGCCAGCTGGTGCTAGGGA CTCAGGACAGTTTCCCAGAAAAGGCCAAGCGGG CAGCCCCTCCAGGGGCCGGGTGAGGAAGCTGGG GGGTGCGGAGGCCACACTGGGTCCCTGAACCCC CTGCTTGGTTACAGTGCAGCTCCT	1991
344617	1862	RNB6 containing mir-248* (Kosik)	GGCACGAGTGGGAGTACAGGACTCGCCTCCTCA GGGTTCCCTGTGCTGCCACTTTTCAGCCATGGC CACAAGTGAACAGAGTATCTGCCAAGCCCGGGC TTCCGTGATGGTCTACGATGACACCAGTAAGAA ATGGGTACCAATCAAACCTGGCCAGCAGGGATT CAGCCGGATCAACATCTACCACAACACTGCCAG CAACACCTTCAGAGTCGTTGGAGTCAAGTTGCA GGATCAGCAGGTTGTGATCAATTA	1992
346692	1889	gamma-aminobutyric acid (GABA) A receptor, epsilon, containing miR-224 (Sanger)	GCCAGAGCGTGAGCCGCGACCTCCGCGCAGGTG GTCGCGCCGGTCTCCGCGGAAATGTTGTCCAAA GTTCTTCCAGTCCTCCTAGGCATCTTATTGATC CTCCAGTCGAGGGTCGAGGGACCTCAGACTGAA TCAAAGAATGAAGCCTCTTCCCGTGATGTTGTC TATGGCCCCCAGCCCCAGCCTCTGGAAAATCAG CTCCTCTCTGAGGAAACAAAGTCAACTGAGACT GAGACTGGGAGCAGAGTTGGCAAA	1993
348128	1858	Nuclear transcription factor Y, gamma containing miR-30c-2 and miR-30e	ACGCGTCCGGGGAAACGGTGCAAACGGCGTGGC CGCCATCTTGCTTGTGCCCCCGCTTCGCGCGCG CTCCGTGACGCACACTTCCCCCCTCCCCTCCGC CGCGCCTGGGCCTCTGCATTGCCCGACTCCGTA GGAGCGCGGGGGCGGCTCCTGCTCTTCCTGGAC TCCTGAGCAGAGTTGTCGAGATGTCCACAGAAG GAGGATTTGGTGGTACTAGCAGCAGTGATGCCC AGCAAAGTCTACAGTCGTTCTGGC	1994

Example 36: Oligomeric compounds targeting components of the RNAi pathway

In one step of miRNA processing, the pre-miRNAs, approximately 70 to 110 nucleotides in length, are processed by the human Dicer RNase into mature miRNAs. The Dicer enzyme is conserved from fungi to vertebrates. The helicase-moi gene is the human homolog of Dicer from *Drosophila*. Human Dicer is required for the production of active small non-coding RNAs involved in repressing gene expression by the RNA interference pathway; targeted destruction in cultured human cells of the mRNA encoding human Dicer leads to accumulation of the let-7 pre-miRNA (Hutvagner, et al., 2001, *Science* 293(5531):834-8). Furthermore, the zebrafish Dicer1 ortholog was cloned and its expression disrupted by target-selected gene inactivation; in homozygous dicer1 mutants, an initial build-up of miRNA levels produced by maternal Dicer1 was observed, but miRNA accumulation halted after a few days, and a developmental arrest was observed at around day 10, indicating that miRNA-producing Dicer1 is essential for vertebrate development (Wienholds, et al., 2003, *Nat Genet.*, 35(3):217-8). The

Dicer gene has also been disrupted in mice. Loss of Dicer1 led to lethality early in development, with Dicer1-null embryos depleted of stem cells. Coupled with the inability to generate viable Dicer1-null embryonic stem cells, this suggests a role for Dicer and, by implication, the RNAi machinery in maintaining the stem cell population during early mouse development (Bernstein, et al., 2003, *Nat Genet.*, 35(3):215-7).

Thus, it was predicted that treatment of cells with oligomeric compounds targeting human Dicer would result in an increase in expression levels of miRNA precursor structures, and thus would be useful in increasing the sensitivity of or enabling the detection of certain pre-miRNAs and/or pri-miRNAs otherwise beneath the limits of detection. It was also predicted that treatment of cells with oligomeric compounds targeting human Dicer would result in a decrease in mature miRNAs, leading to dysregulation of miRNA-regulated targets. Thus, a transcriptomics- or proteomics-based approach could be used to compare and identify target RNAs or proteins for which changes in expression levels correlate directly or inversely with the changes in mature miRNA levels. Target RNAs or their downstream protein products which are being misregulated upon treatment with oligomeric compounds targeting human Dicer, can thereby lead to the identification of any potential miRNA-regulated targets.

The present invention provides methods of maintaining a pluripotent stem cell comprising contacting the cell with an effective amount of an oligomeric compound targeting human Dicer. The pluripotent stem cell can be present in a sample of cord blood or bone marrow, or may be present as part of a cell line. In addition, the pluripotent stem cell can be an embryonic stem cell.

In some embodiments, oligomeric compounds ISIS Number 138648 (GCTGACCTTTTTGCTTCTCA; herein incorporated as SEQ ID NO: 1995) and ISIS Number 138678 (CATAAACATTTCCATCAGTG; herein incorporated as SEQ ID NO:-1996), both 5-10-5 2'-MOE gapmers with phosphorothioate backbones, were designed to target the human Dicer mRNA. These oligomeric compounds were used to transfect the A549, T-24, HepG2, HMEC, T47D, HuVEC, and MCF7 cell lines, as well as human primary dendritic cells, preadipocytes, differentiated adipocytes, and human spleen tissue, and the effects of treatment with the oligomeric compounds on phenotypic parameters, such as caspase activity and expression of markers of adipocyte differentiation (aP2, HSL, Glut4) was assessed as described in Examples 11 and 13, respectively.

Interestingly, treatment of T47D breast adenocarcinoma (p53 mutant) cells with the oligomeric compound ISIS 138648 targeting human Dicer was observed to result in a 41% increase in caspase activity. This phenotype is similar to the effect of treatment of T47D cells

with oligomeric compound ISIS Number 328645 (SEQ ID NO: 554), targeting mir-124a-1 described in Example 11. It is believed that treatment of T47D cells with the oligomeric compound ISIS 138648 inhibits expression of human Dicer, which results in reduced production of mature miRNAs. Inadequate levels of miRNAs or inappropriately elevated levels of miRNA precursors may disrupt important cellular events, such as regulation of the cell cycle, and lead cells to trigger apoptotic pathways.

In adipocyte differentiation assays performed as described in Example 13, treatment of human white preadipocytes with ISIS Number 138648 targeting human Dicer was observed to result in decreased triglyceride production. An increase in triglyceride content is a well-established marker of adipocyte differentiation; treatment of adipocytes with oligomeric compound ISIS 138648 resulting in a decrease in triglyceride levels indicates an apparent inhibition of adipocyte differentiation. Thus, the oligomeric compound ISIS 138648 targeting human Dicer may be useful as a pharmaceutical agent with applications in the treatment, attenuation or prevention of obesity, hyperlipidemia, atherosclerosis, atherogenesis, diabetes, hypertension, or other metabolic diseases as well as in the maintenance of the undifferentiated, pluripotent phenotype of stem or precursor cells. The inhibition of expression of human Dicer by ISIS 138648 is believed to result in decreased production of miRNAs, and some of these miRNAs may be critical for proper regulation of the cell cycle (such as is predicted for the regulation of ERK5 by mir-143); treatment of preadipocytes with this inhibitor of human Dicer and the resulting decrease in production of mature miRNAs, as well as the concommitant accumulation of pre-miRNAs or pri-miRNAs may upset the balance between cellular proliferation and differentiation, predisposing cells to an undifferentiated state.

Example 37: Design of additional double-stranded miRNA mimics

As described *supra*, a reporter vector system employing, for example, the pGL3-bulge(x3) plasmid or the pGL3-mir-143 sensor plasmids can be used to assess the ability of miRNA mimics to bind target sites or to assess their effects on the expression of miRNAs, pre-miRNAs or pri-miRNAs. Various chemically modified miRNA mimics have been designed and synthesized for this purpose. The oligomeric compounds of the present invention can be designed to mimic a pri-miRNA, pre-miRNA or a single- or double-stranded miRNA while incorporating certain chemical modifications that alter one or more properties of the mimic, thus creating a construct with superior qualities over the endogenous precursor or miRNA.

In accordance with the present invention, a series of oligomeric compounds was designed and synthesized to mimic double-stranded miRNAs. In some embodiments, various oligomeric

compounds representing the sense strand of the mir-143 miRNA, were synthesized, incorporating various chemically modified sugars and/or internucleoside linkages. Similarly, various oligomeric compounds representing the antisense strand complementary to the mir-143 miRNA were synthesized, incorporating various chemically modified sugars and/or internucleoside linkages. The antisense and sense oligomeric compounds designed to mimic mir-143 are shown in Table 68 and 69, respectively. All of the sugar moieties of the oligomeric compounds listed in Tables 68 and 69 are ribonucleotides unless otherwise indicated, and the 3'-terminal nucleosides each have a 3'-OH group unless otherwise specified. The sequences are written in the 5' to 3' direction. All antisense oligomeric compounds in Table 68 have the nucleotide sequence GAGCUACAGUGCUUCAUCUCA (herein incorporated as SEQ ID NO: 1864). The sense oligomeric compounds in Table 69 have one of three nucleotide sequences which only differ in that there is a thymidine substitution in place of uridine in two of the sequences; these are: UGAGAUGAAGCACUGUAGCUC (herein incorporated as SEQ ID NO: 1088), UGAGATGAAGCACUGUAGCUC (herein incorporated as SEQ ID NO: 1088), and UGAGAUGAAGCACUGTAGCUC (herein incorporated as SEQ ID NO: 1088). In Tables 68 and 69, the column "Chemical modification" lists the general class and type of chemical modification for the respective oligomeric compounds. The column "Sequence" indicates the nucleobase sequence with symbols indicating sugar and linkage modifications. In the Sequence columns of Tables 68 and 69, internucleoside linkages are assumed to be phosphodiester unless otherwise indicated; phosphorothioate internucleoside linkages are indicated by "s" after the letter indicating the nucleobase (for example, "GsC" indicates a guanosine linked to a cytidine with a 3', 5'-phosphorothioate (PS) internucleoside linkage). Other symbols used to indicate sugar and linkage modifications in the Sequence columns of Tables 68 and 69 are as follows: "^{m}C" indicates that the cytidine residue at the specified position is a 5-methylcytidine; replacement of the 2'-OH of the ribosyl sugar with a 2'-*O*-methoxyethyl (2'-MOE) is indicated by "e" after the letter indicating the nucleobase (for example, "GAe" indicates a guanosine linked to a 2'-MOE adenosine with a 3', 5'-phosphodiester internucleoside linkage); replacement or substitution of the 2'-OH of the ribosyl sugar with a 2-O-methyl (2'-OMe) is indicated by "m" after the letter indicating the nucleobase (for example, "CmA" indicates a 2'-O-methyl cytidine linked to an adenosine with a 3', 5'-phosphodiester internucleoside linkage); nucleosides having a 2'-Fluoro (2'-F) substituent group are indicated with a "f" after the letter indicating the nucleobase (for example, "GfAm" indicates a 2'-F guanosine linked to a 2'-O-Methyl-adenosine with a 3', 5'-phosphodiester internucleoside linkage); 4'-Thio (4'-S) residues are indicated by "4s" (for example, "GC4s" indicates a guanosine linked to a 4'-S cytidine with a 3', 5'-phosphodiester

internucleoside linkage).

In the "Chemical modification" column of Tables 68 and 69, "unmodified" indicates a native strand. "Full" indicates a fully modified oligomeric compound where the chemical modification occurs at each nucleoside or internucleoside linkage. For example each nucleoside of the oligomeric compound could have a modified sugar selected from one of 4'-S, 2'-MOE, 2'-F, 2'-O-Methyl, LNA or ENA™ or could have uniformly modified internucleoside linkages such as uniform phosphorothioate internucleoside linkages.

In the "Chemical modification" column of Tables 68 and 69, "Alt" indicates that the nucleosides and or the internucleoside linkages have an alternating motif. The alternating motif can be the result of different sugar modifications that alternate (for example, 2'-ribose alternating with a 2'-modification other than ribose such as MOE, 2'-F or 2'-O-Methyl, or alternating fully modified sugars such as 2'-O-Methyl alternating with 2'-F), or can be the result of alternating internucleoside linkages (for example alternating phosphodiester and phosphorothioate internucleoside linkages). Oligomeric compounds having alternating modifications are described in the chemical modification column with the modification at the first 5'-nucleoside or the first internucleoside linkage at the 5'-end of the nucleoside listed first. For example, oligomeric compounds described as "Alt 2'-F/2'-OMe" have a 2'-F modified sugar at the 5'-terminal nucleoside with the next nucleoside having a 2'-F modified sugar and this alternating pattern is repeated through to the 3'-terminal nucleoside.

In the "Chemical modification" column of Tables 68 and 69, "gapmer" indicates that the oligomeric compound is divided into three distinct regions. The wings are the regions located externally at the 3' and the 5'-end with the gap being the internal region. Gapmers can be the result of differences in linkage (PO vs. PS) or nucleoside (modified sugar moiety or heterocyclic base). Gapmers also include chimeric gapped oligomeric compounds such as when the wings and the gapped regions are all distinct one from each other. Examples of chemistries that can be used to prepare gapped oligomeric compounds include 2'-MOE, 2'-F, 2'-O-Methyl, LNA and ENA™.

In the "Chemical modification" column of Tables 68 and 69, "hemimer" indicates an oligomeric compound that has two distinct regions resulting from differences in the nucleoside or the internucleoside linkage or both. Examples include oligomeric compounds having two regions wherein one region has modified internucleoside linkages such as PS or modified sugar moieties such as 2'-MOE, 2'-F, 2'-O-Methyl, LNA and ENA™.

In the "Chemical modification" column of Tables 68 and 69, "blockmer" indicates an oligomeric compound that has at least one block of modified nucleosides or internucleoside

linkages that are located internally. The blocks are generally from two to about five nucleosides in length and are not located at one of the ends as that could be a hemimer. Examples of blockmers include oligomeric compounds having from two to about five internally modified nucleosides such as 2'-MOE, 2'-F, 2'-O-Methyl, LNA and ENA™.

In the "Chemical modification" column of Tables 68 and 69, "point modification" indicates an oligomeric compound having a single modified nucleoside located in the oligomeric compound at any position.

Table 68

Antisense oligomeric compounds mimicking mir-143

ISIS NO:	SEQ ID NO	Chemical modification	Sequence
348173	1864	Unmodified	GAGCUACAGUGCUUCAUCUCA
348187	1864	Full PS	GsAsGsCsUsAsCsAsGsUsGsCsUsUsCsAsUsCsUsCsA
362972	1864	Alt ribose/2'-MOE	GAeGCeUAeCAeGUeGCeUUeCAeUCeUCeA
366179	1864	Alt ribose/2'-OMe	GAmGCmUAmCAmGUmGCmUUmCAmUCmUCmA
366181	1864	Alt 2'-OMe/ribose	GmAGmCUmACmAGmUGmCUmUCmAUmCUmCAm
366182	1864	Full 2'-OMe	GmAmGmCmUmAmCmAmGmUmGmCmUmUmCmAmUmCmUmCmAm
366188	1864	2'-MOE 3-15-3 gapmer	GeAeGeCUACAGUGCUUCAUCUeCeAe
366189	1864	Full 2'-MOE	GeAeGeCeUeAeCeAeGeUeGeCeUeUeCeAeUeCeUeCeAe
366190	1864	Alt 2'-MOE/ribose	GeAGeCUeACeAGeUGeCUeUCeAUeCUeCAe
366198	1864	Alt 2'-F/2'-OMe	GfAmGfCmUfAmCfAmGfUmGfCmUfUmCfAmUfCmUfCmAf

Table 69

Sense oligomeric compounds mimicking mir-143

ISIS NO:	SEQ ID NO	Chemical modification	Sequence
348201	1088	Unmodified	UGAGAUGAAGCACUGUAGCUC
342199	220	Unmodified	UGAGAUGAAGCACUGUAGCUCA
348215	1088	Full PS	UsGsAsGsAsUsGsAsAsGsCsAsCsUsGsUsAsGsCsUsC
366175	1088	PO/PS/PO gapmer	UGAGAUGAAGsCsAsCsUsGUAGCUC
366176	1088	5' PS hemimer	UsGsAsGsAsUGAAGCACUGUAGCUC
366177	1088	3' PS hemimer	UGAGAUGAAGCACUGUsAsGsCsUsC
366178	1088	Alt 2'-OMe/ribose	UmGAmGAmUGmAAmGCmACmUGmUAmGCmUCm
366180	1088	Alt ribose/2'-OMe	UGmAGmAUmGAmAGmCAmCUmGUmAGmCUmC
366183	1088	2'-OMe blockmer	UGAGAUmGmAAGmCmACUGUAGCmUmCm
366184	1088	2'-OMe blockmer	UGAGAUGAmAmGCAmCmUGUAGCmUmCm
366185	1088	2'-MOE blockmer	UGAGAUGAAGCAeCeUGUAGCUC

366186	1088	2'-MOE blockmer	UGAGeAeUeGAAGCACUGUAGCUC
366187	1088	2'-MOE blockmer	UGAGAUGAAGCACUGUeAeGeCUC
366191	1088	4's gapmer	U4sGAGAUGAAGCACUGUAGC4sU4sC4s
366192	1088	4's 2'-OMe gapmer	U4sGAGAUGAAGCACUGUAGCmUmCm
366193	1088	2'-F blockmer	UGfAfGfAfUfGfAfAfGCACUGUAGCUC
366194	1088	LNA blockmer	UGAGlAlUlGAAGCACUGUAGCUC
366195	1088	LNA blockmer	UGAGAUGAAGCACUGUlAlGlCUC
366196	1088	LNA blockmer	UGAGAUGAAGCAlClUGUAGCUC
366197	1088	Alt 2'-OMe/2'-F	UmGfAmGfAmUfGmAfAmGfCmAfCmUfGmUfAmGfCmUfCm
366209	1088	LNA blockmer	UGAGlAlTlGAAGCACUGUAGCUC
366210	1088	LNA blockmer	UGAGAUGAAGCACUGTlAlGlCUC
366211	1088	LNA point modification	UGAGAUGAAGCAl^{m}ClUGUAGCUC

Oligomeric compounds representing mimics of the antisense and the sense strands of a double-stranded miRNA can be hybridized, and various combinations of synthetic, modified or unmodified double-stranded oligomeric compounds, each representing a double-stranded miRNA mimic, may be formed. With the various chemical modifications, many permutations of such double-stranded miRNA mimics can be achieved. These double-stranded oligomeric compounds can be blunt-ended or can comprise two strands differing in length such that the resulting double-stranded oligomeric compound has a 3'- and/or a 5'-overhang of one to five nucleotides on either the sense and/or antisense strands. The compounds can be analyzed for their ability to mimic miRNAs, pre-miRNAs, or pri-miRNAs and to bind to nucleic acid targets (for example, RNA transcripts, mRNAs, reporter contructs), for their effects on miRNA, pre-miRNA, or pri- miRNA expression levels by quantitative real-time PCR, or they can be used in other *in vivo* or *in vitro* phenotypic assays to investigate the role of miRNAs in regulation of downstream nucleic acid targets, as described in other examples herein. These oligomeric compounds of the present invention may disrupt pri-miRNA and/or pre-miRNA structures, and sterically hinder cleavage by Drosha-like and/or Dicer-like Rnase III enzymes, respectively. Oligomeric compounds capable of binding to the mature miRNA are also predicted to prevent the RISC-mediated binding of a miRNA to its mRNA target, either by cleavage or steric occlusion of the miRNA.

In some embodiments, HeLa cells transiently expressing the pGL3-mir-143 sensor reporter vector and the pRL-CMV *Renilla* luciferase plasmids, as described in Example 27,-were also treated with double-stranded oligomeric compounds produced by hybridizing an antisense oligomeric compound from Table 68 with a sense oligomeric compound from Table 69, as described herein. HeLa cells were routinely cultured and passaged and on the day before

transfection, the HeLa cells were seeded onto 96-well plates 3,000 cells/well. Cells were transfected according to standard published procedures with plasmids using 2 μg Lipofectamine™ 2000 Reagent (Invitrogen) per μg of plasmid DNA, or, when transfecting double-stranded oligomeric compounds, 1.25 μg of Lipofectamine™ 2000 Reagent was used per 100 nM oligonucleotide. Cells were treated at 10 nM and 100 nM with the double-stranded oligomeric compound mimics. A double-stranded oligomeric compound representing a 10-base mismatched sequence antisense to the unrelated PTP1B mRNA, composed of ISIS Number 342427 (SEQ ID NO: 863) hybridized to its perfect complement ISIS Number 342430 (SEQ ID NO: 864) was used as a negative control ("ds-Control"). The pGL3-mir-143 sensor reporter plasmid was transfected at 0.025 μg per well. The luciferase signal in each well was normalized to the *Renilla* luciferase (RL) activity produced from the co-transfected pRL-CMV plasmid, which was transfected at 2.5 μg per well. In accordance with methods described in Example 12 and 27, a luciferase assay was performed 48-hours after transfection. Briefly, cells were lysed in passive lysis buffer (PLB; Promega), and 20 ul of the lysate was then assayed for RL activity using a Dual Luciferase Assay kit (Promega) according to the manufacturer's protocol. The results below are an average of two trials and are presented as percent pGL3-Control luciferase expression normalized to pRL-CMV expression (RL). The data are shown in Table 70.

Table 70

Luciferase assays showing effects of double-stranded compounds mimicking mir-143

	luciferase expression (% lucif.only control)	
ISIS Numbers hybridized to form ds compound	10 nM treatment	100 nM treatment
pGL3-mir-143 sensor + pRL-CMV only	79.4	94.1
pGL3-mir-143 sensor + pRL-CMV only	120.6	105.9
342430 + 342427 ds-Control	75.0	86.1
348215 + 348173	23.1	37.5
348215 + 362972	28.6	32.4
366175 + 348173	20.0	25.0
366175 + 362972	56.9	33.4
366176 + 348173	42.6	30.0
366176 + 362972	63.4	98.5
366177 + 348173	35.7	33.6
366177 + 362972	32.8	29.1
366183 + 348173	29.2	24.5
366183 + 362972	54.3	36.8
366184 + 348173	35.6	27.7
366184 + 362972	47.3	31.9
366185 + 348173	22.2	18.5
366185 + 362972	27.2	28.7
366186 + 348173	34.8	26.8

366186 + 362972	50.2	60.8
366187 + 348173	34.6	32.4
366187 + 362972	25.5	27.9
366209 + 348173	112.9	85.4
366209 + 362972	111.3	97.5
366210 + 348173	37.1	28.2
366210 + 362972	51.8	41.1
366211 + 348173	32.1	28.7
366211 + 362972	46.6	36.7
366193 + 348173	20.0	17.6
366193 + 362972	24.4	22.6
366191 + 348173	27.3	26.9
366191 + 362972	37.5	25.8
366192 + 348173	22.3	27.9
366192 + 362972	28.9	25.7
366197 + 348173	37.0	22.2
366197 + 362972	42.0	32.7
366197 + 366198	30.2	28.7
366178 + 348173	75.0	74.0
366178 + 362972	98.6	104.0
366178 + 366179	63.5	75.4
366178 + 366181	74.1	70.6
366180 + 366179	97.0	38.5
366180 + 366181	43.5	50.2
pGL3-mir-143 sensor + pRL-CMV only	100.0	112.9
342430 + 342427 ds-Control	81.2	165.9
348201 + 348187	44.0	55.4
348201 + 366182	138.9	89.2
348201 + 366179	76.2	68.5
348201 + 366181	92.2	340.0
348201 + 362972	65.2	67.3
348201 + 366198	47.3	58.8
342199 + 348173	40.3	122.0
342199 + 348187	91.3	55.5
342199 + 366182	47.4	84.1
342199 + 366179	76.5	45.9
342199 + 366181	86.1	34.2
342199 + 362972	50.8	78.7
342199 + 366189	26.7	45.2
342199 + 366190	93.0	37.9
342199 + 366198	52.5	45.5

From these data, it was observed that treatment of HeLa cells expressing the pGL3-mir-143 sensor reporter vector with many of the double-stranded oligomeric compounds mimicking mir-143 at both the 10 nM and 100 nM concentrations resulted in inhibition of luciferase activity. For example, the double stranded oligomeric compounds comprising ISIS Number 348173 as an unmodified antisense strand in combination with ISIS Number 366177 (a hemimer with phosphorothioate modified residues at the 3' end) or ISIS Number 366185 (a 2'-MOE blockmer) as the modified sense strand resulted in significant reductions in luciferase activity. Furthermore, double stranded oligomeric compounds comprising, as the antisense strand, either

ISIS Number 366189 (a fully modified 2'-MOE compound) or ISIS Number 366198 (with alternating 2'-Fluoro and 2'-O-Methyl residues), in combination with ISIS Number 342199 as the unmodified sense strand resulted in significant reductions in luciferase activity, indicating that these compounds are effective mir-143 mimics. Taken with the previous observations that the mir-143 miRNA is involved in adipocyte differentiation, these double-stranded mir-143 mimics may be useful as therapeutic agents with applications in the treatment, attenuation or prevention of obesity, hyperlipidemia, atherosclerosis, atherogenesis, diabetes, hypertension, or other metabolic diseases as well as having potential applications in the maintenance of the pluripotent phenotype of stem or precursor cells.

Example 38: Design of oligomeric compounds targeting pri-miRNAs

As described above, mature miRNAs originate from pri-miRNAs, which are believed to be processed into pre-miRNAs by the Drosha RNase III enzyme, and subsequently exported from the nucleus to the cytoplasm, where the pre-miRNAs are processed by human Dicer into double-stranded intermediates resembling siRNAs, which are then processed into mature miRNAs.

Some oligomeric compounds of the present invention are believed to bind to pri-miRNA molecules and interfere with their processing into a mature miRNA. These oligomeric compounds were observed to affect a decrease in expression levels of mature miRNA, presumably due, at least in part, to steric interference with their processing into mature miRNAs by human Dicer. Furthermore, as described above, some oligomeric compounds of the present invention have been observed to affect an increase in expression levels of pri-miRNAs; it is believed that the decrease in levels of mature miRNAs cells treated with these oligomeric compounds may trigger a feedback mechanism that signals these cells to increase production of the pri-miRNA molecule. This increase may be the result, at least in part, of a stimulation of transcription of the pri-miRNAs in response to the decrease in mature miRNAs. Not mutually exclusive with the processing interference and the feedback mechanisms is the possibility that treatment with oligomeric compounds could stimulate the activity of an RNA-dependent RNA polymerase (RdRP) that amplifies pre-miRNAs or pri-miRNAs.

In one embodiment, several nested series of single-stranded oligomeric compounds, 15-nucleotides in length, composed of 2'-methoxyethoxy (2'-MOE) modified nucleotides and phosphorothioate (P=S) internucleoside linkages throughout the compound, were designed and synthesized to target several pri-miRNAs, to test the effects of these compounds on the expression levels of small non-coding RNAs. These compounds are shown in Table 71, below.

"Pri-miRNA" indicates the particular pri-miRNA which contains the miRNA that the oligomeric compound was designed to target. The "Region" column describes the general region of the pri-miRNA that is being targeted. The following features of the stemloop structures of pri-miRNA were targeted: 1) "5'-stem side mir start" means the 5'-stem side at the 5'-end of the sequence representing the mature miRNA, with the oligomeric compounds targeting and spanning sequences completely outside of the mature miRNA to completely within it; 2) "5'-stem side mir end" means the 5'-stem side at the 3'-end of the sequence representing the mature miRNA, with the oligomeric compounds targeting and spanning sequences completely within the mature miRNA to spanning and extending beyond the 3'-end of it; 3) "loop start" means the 5'-side of the loop region; 4) "loop end" means with the oligomeric compounds targeting and ending at the 3'-side of the loop region; 5) "3'-stem side mir start" means the 3'-stem side at the 5'-end of the sequence representing the mature miRNA, with the oligomeric compounds targeting and completely within the mature miRNA to a few nucleotides outside of it; 6) "3'-stem side mir end" means the 3'-stem side at the 3'-end of the sequence representing the mature miRNA, with the oligomeric compounds targeting and spanning sequences completely within the mature miRNA to completely outside of it.

Table 71

Uniform 2'-MOE oligomeric compounds targeting pri-miRNAs

pri-miRNA	Region	Isis #	Sequence	SEQ ID NO:
mir-182	mir-182 5'-stem side mir start	366888	AAACGGGGGGAGGCA	1997
mir-182	mir-182 5'-stem side mir start	366889	GCCAAAAACGGGGGG	1998
mir-182	mir-182 5'-stem side mir start	366890	ATTGCCAAAAACGGG	1999
mir-182	mir-182 5'-stem side mir start	366891	ACCATTGCCAAAAAC	2000
mir-182	mir-182 5'-stem side mir start	366892	TCTACCATTGCCAAA	2001
mir-182	mir-182 5'-stem side mir end	366893	TGTGAGTTCTACCAT	2002
mir-182	mir-182 5'-stem side mir end	366894	CAGTGTGAGTTCTAC	2003
mir-182	mir-182 5'-stem side mir end	366895	CACCAGTGTGAGTTC	2004
mir-182	mir-182 5'-stem side mir end	366896	CCTCACCAGTGTGAG	2005
mir-182	mir-182 loop start	366897	TCCTGTTACCTCACC	2006
mir-182	mir-182 loop start	366898	GATCCTGTTACCTCA	2007
mir-182	mir-182 loop start	366899	CGGATCCTGTTACCT	2008
mir-182	mir-182 loop end	366900	TGTTACCTCACCAGT	2009
mir-182	mir-182 loop end	366901	CCTGTTACCTCACCA	2010
mir-182	mir-182 loop end	366902	ATCCTGTTACCTCAC	2011
mir-182	mir-182 loop end	366903	GGATCCTGTTACCTC	2012
mir-182	mir-182 loop end	366904	CCGGATCCTGTTACC	2013
mir-182	mir-182 3'-stem side mir start	366905	GAACCACCGGATCCT	2014
mir-182	mir-182 3'-stem side mir start	366906	CTAGAACCACCGGAT	2015
mir-182	mir-182 3'-stem side mir start	366907	AGTCTAGAACCACCG	2016
mir-182	mir-182 3'-stem side mir start	366908	GCAAGTCTAGAACCA	2017
mir-182	mir-182 3'-stem side mir end	366909	ATAGTTGGCAAGTCT	2018
mir-182	mir-182 3'-stem side mir end	366910	CGCCCCATAGTTGGC	2019
mir-182	mir-182 3'-stem side mir end	366911	CCTCGCCCCATAGTT	2020

mir-182	mir-182 3'-stem side mir end	366912	AGTCCTCGCCCCATA	2021
mir-182	mir-182 3'-stem side mir end	366913	CTGAGTCCTCGCCCC	2022
mir-216	mir-216 5'-stem side mir start	366914	AAGCCAACTCACAGC	2023
mir-216	mir-216 5'-stem side mir start	366915	AGATTAAGCCAACTC	2024
mir-216	mir-216 5'-stem side mir start	366916	CTGAGATTAAGCCAA	2025
mir-216	mir-216 5'-stem side mir start	366917	CAGCTGAGATTAAGC	2026
mir-216	mir-216 5'-stem side mir start	366918	TGCCAGCTGAGATTA	2027
mir-216	mir-216 5'-stem side mir end	366919	TCACAGTTGCCAGCT	2028
mir-216	mir-216 5'-stem side mir end	366920	ATCTCACAGTTGCCA	2029
mir-216	mir-216 5'-stem side mir end	366921	AACATCTCACAGTTG	2030
mir-216	mir-216 5'-stem side mir end	366922	ATGAACATCTCACAG	2031
mir-216	mir-216 loop start	366923	ATTGTATGAACATCT	2032
mir-216	mir-216 loop start	366924	GGATTGTATGAACAT	2033
mir-216	mir-216 loop start	366925	AGGGATTGTATGAAC	2034
mir-216	mir-216 loop end	366926	TGTATGAACATCTCA	2035
mir-216	mir-216 loop end	366927	TGAGGGATTGTATGA	2036
mir-216	mir-216 3'-stem side mir start	366928	ACTGTGAGGGATTGT	2037
mir-216	mir-216 3'-stem side mir start	366929	ACCACTGTGAGGGAT	2038
mir-216	mir-216 3'-stem side mir start	366930	GAGACCACTGTGAGG	2039
mir-216	mir-216 3'-stem side mir start	366931	CCAGAGACCACTGTG	2040
mir-216	mir-216 3'-stem side mir end	366932	CATAATCCCAGAGAC	2041
mir-216	mir-216 3'-stem side mir end	366933	GTTTAGCATAATCCC	2042
mir-216	mir-216 3'-stem side mir end	366934	TCTGTTTAGCATAAT	2043
mir-216	mir-216 3'-stem side mir end	366935	TGCTCTGTTTAGCAT	2044
mir-216	mir-216 3'-stem side mir end	366936	AATTGCTCTGTTTAG	2045
mir-143	mir-143 5'-stem side mir start	366937	AGGCTGGGAGACAGG	2046
mir-143	mir-143 5'-stem side mir start	366938	ACCTCAGGCTGGGAG	2047
mir-143	mir-143 5'-stem side mir start	366939	TGCACCTCAGGCTGG	2048
mir-143	mir-143 5'-stem side mir start	366940	CACTGCACCTCAGGC	2049
mir-143	mir-143 5'-stem side mir start	366941	CAGCACTGCACCTCA	2050
mir-143	mir-143 5'-stem side mir end	366942	AGAGATGCAGCACTG	2051
mir-143	mir-143 5'-stem side mir end	366943	ACCAGAGATGCAGCA	2052
mir-143	mir-143 5'-stem side mir end	366944	CTGACCAGAGATGCA	2053
mir-143	mir-143 5'-stem side mir end	366945	CAACTGACCAGAGAT	2054
mir-143	mir-143 loop start	366946	CAGACTCCCAACTGA	2055
mir-143	mir-143 loop start	366947	CTCAGACTCCCAACT	2056
mir-143	mir-143 loop start	366948	ATCTCAGACTCCCAA	2057
mir-143	mir-143 loop end	366949	AACTGACCAGAGATG	2058
mir-143	mir-143 loop end	366950	CCAACTGACCAGAGA	2059
mir-143	mir-143 loop end	366951	TCCCAACTGACCAGA	2060
mir-143	mir-143 loop end	366952	ACTCCCAACTGACCA	2061
mir-143	mir-143 3'-stem side mir start	366953	TTCATCTCAGACTCC	2062
mir-143	mir-143 3'-stem side mir start	366954	TGCTTCATCTCAGAC	2063
mir-143	mir-143 3'-stem side mir start	366955	CAGTGCTTCATCTCA	2064
mir-143	mir-143 3'-stem side mir end	366956	TGAGCTACAGTGCTT	2065
mir-143	mir-143 3'-stem side mir end	366957	TCTTCCTGAGCTACA	2066
mir-143	mir-143 3'-stem side mir end	366958	CTCTCTTCCTGAGCT	2067
mir-143	mir-143 3'-stem side mir end	366959	CTTCTCTCTTCCTGA	2068
mir-143	mir-143 3'-stem side mir end	366960	CAACTTCTCTCTTCC	2069
mir-23b	mir-23b 5'-stem side mir start	366961	AGCAGCCAGAGCACC	2070
mir-23b	mir-23b 5'-stem side mir start	366962	ACCCAAGCAGCCAGA	2071
mir-23b	mir-23b 5'-stem side mir start	366963	GGAACCCAAGCAGCC	2072
mir-23b	mir-23b 5'-stem side mir start	366964	CCAGGAACCCAAGCA	2073
mir-23b	mir-23b 5'-stem side mir start	366965	ATGCCAGGAACCCAA	2074
mir-23b	mir-23b 5'-stem side mir end	366966	AATCAGCATGCCAGG	2075
mir-23b	mir-23b 5'-stem side mir end	366967	ACAAATCAGCATGCC	2076
mir-23b	mir-23b 5'-stem side mir end	366968	GTCACAAATCAGCAT	2077
mir-23b	mir-23b 5'-stem side mir end	366969	TAAGTCACAAATCAG	2078
mir-23b	mir-23b loop start	366970	AATCTTAAGTCACAA	2079

mir-23b	mir-23b loop start	366971	TTAATCTTAAGTCAC	2080
mir-23b	mir-23b loop start	366972	TTTTAATCTTAAGTC	2081
mir-23b	mir-23b loop end	366973	CTTAAGTCACAAATC	2082
mir-23b	mir-23b loop end	366974	ATCTTAAGTCACAAA	2083
mir-23b	mir-23b loop end	366975	TAATCTTAAGTCACA	2084
mir-23b	mir-23b loop end	366976	TTTAATCTTAAGTCA	2085
mir-23b	mir-23b loop end	366977	ATTTTAATCTTAAGT	2086
mir-23b	mir-23b 3'-stem side mir start	366978	TGTGATTTTAATCTT	2087
mir-23b	mir-23b 3'-stem side mir start	366979	CAATGTGATTTTAAT	2088
mir-23b	mir-23b 3'-stem side mir start	366980	TGGCAATGTGATTTT	2089
mir-23b	mir-23b 3'-stem side mir start	366981	CCCTGGCAATGTGAT	2090
mir-23b	mir-23b 3'-stem side mir end	366982	TGGTAATCCCTGGCA	2091
mir-23b	mir-23b 3'-stem side mir end	366983	GTTGCGTGGTAATCC	2092
mir-23b	mir-23b 3'-stem side mir end	366984	GTGGTTGCGTGGTAA	2093
mir-23b	mir-23b 3'-stem side mir end	366985	GTCGTGGTTGCGTGG	2094
mir-23b	mir-23b 3'-stem side mir end	366986	AAGGTCGTGGTTGCG	2095
mir-203	mir-203 5'-stem side mir start	366987	GACCCAGCGCGCGAG	2096
mir-203	mir-203 5'-stem side mir start	366988	CACTGGACCCAGCGC	2097
mir-203	mir-203 5'-stem side mir start	366989	AACCACTGGACCCAG	2098
mir-203	mir-203 5'-stem side mir start	366990	AAGAACCACTGGACC	2099
mir-203	mir-203 5'-stem side mir start	366991	GTTAAGAACCACTGG	2100
mir-203	mir-203 5'-stem side mir end	366992	TTGAACTGTTAAGAA	2101
mir-203	mir-203 5'-stem side mir end	366993	CTGTTGAACTGTTAA	2102
mir-203	mir-203 5'-stem side mir end	366994	GAACTGTTGAACTGT	2103
mir-203	mir-203 5'-stem side mir end	366995	ACAGAACTGTTGAAC	2104
mir-203	mir-203 loop start	366996	AATTGCGCTACAGAA	2105
mir-203	mir-203 loop start	366997	ACAATTGCGCTACAG	2106
mir-203	mir-203 loop start	366998	TCACAATTGCGCTAC	2107
mir-203	mir-203 loop end	366999	TACAGAACTGTTGAA	2108
mir-203	mir-203 loop end	367000	GCTACAGAACTGTTG	2109
mir-203	mir-203 loop end	367001	GCGCTACAGAACTGT	2110
mir-203	mir-203 loop end	367002	TTGCGCTACAGAACT	2111
mir-203	mir-203 3'-stem side mir start	367003	TTTCACAATTGCGCT	2112
mir-203	mir-203 3'-stem side mir start	367004	ACATTTCACAATTGC	2113
mir-203	mir-203 3'-stem side mir start	367005	TAAACATTTCACAAT	2114
mir-203	mir-203 3'-stem side mir start	367006	TCCTAAACATTTCAC	2115
mir-203	mir-203 3'-stem side mir end	367007	CTAGTGGTCCTAAAC	2116
mir-203	mir-203 3'-stem side mir end	367008	CCGGGTCTAGTGGTC	2117
mir-203	mir-203 3'-stem side mir end	367009	CCGCCGGGTCTAGTG	2118
mir-203	mir-203 3'-stem side mir end	367010	CGCCCGCCGGGTCTA	2119
mir-203	mir-203 3'-stem side mir end	367011	CCGCGCCCGCCGGGT	2120
mir-21	mir-21 5'-stem side mir start	367012	GCTACCCGACAAGGT	2121
mir-21	mir-21 5'-stem side mir start	367013	AAGCTACCCGACAAG	2122
mir-21	mir-21 5'-stem side mir start	367014	GATAAGCTACCCGAC	2123
mir-21	mir-21 5'-stem side mir start	367015	TCTGATAAGCTACCC	2124
mir-21	mir-21 5'-stem side mir start	367016	CAGTCTGATAAGCTA	2125
mir-21	mir-21 5'-stem side mir end	367017	TCAACATCAGTCTGA	2126
mir-21	mir-21 5'-stem side mir end	367018	CAGTCAACATCAGTC	2127
mir-21	mir-21 5'-stem side mir end	367019	CAACAGTCAACATCA	2128
mir-21	mir-21 5'-stem side mir end	367020	ATTCAACAGTCAACA	2129
mir-21	mir-21 loop start	367021	GCCATGAGATTCAAC	2130
mir-21	mir-21 loop start	367022	TTGCCATGAGATTCA	2131
mir-21	mir-21 loop start	367023	TGTTGCCATGAGATT	2132
mir-21	mir-21 loop end	367024	TTCAACAGTCAACAT	2133
mir-21	mir-21 loop end	367025	GATTCAACAGTCAAC	2134
mir-21	mir-21 loop end	367026	GAGATTCAACAGTCA	2135
mir-21	mir-21 loop end	367027	ATGAGATTCAACAGT	2136
mir-21	mir-21 loop end	367028	CCATGAGATTCAACA	2137
mir-21	mir-21 3'-stem side mir start	367029	GTGTTGCCATGAGAT	2138

mir-21	mir-21 3'-stem side mir start	367030	CTGGTGTTGCCATGA	2139
mir-21	mir-21 3'-stem side mir start	367031	CGACTGGTGTTGCCA	2140
mir-21	mir-21 3'-stem side mir start	367032	CATCGACTGGTGTTG	2141
mir-21	mir-21 3'-stem side mir end	367033	GACAGCCCATCGACT	2142
mir-21	mir-21 3'-stem side mir end	367034	ATGTCAGACAGCCCA	2143
mir-21	mir-21 3'-stem side mir end	367035	AAATGTCAGACAGCC	2144
mir-21	mir-21 3'-stem side mir end	367036	CAAAATGTCAGACAG	2145
mir-221	mir-221 5'-stem side mir start	367037	CATGCCCCAGACCTG	2146
mir-221	mir-221 5'-stem side mir start	367038	AGGTTCATGCCCCAG	2147
mir-221	mir-221 5'-stem side mir start	367039	GCCAGGTTCATGCCC	2148
mir-221	mir-221 5'-stem side mir start	367040	TATGCCAGGTTCATG	2149
mir-221	mir-221 5'-stem side mir start	367041	TTGTATGCCAGGTTC	2150
mir-221	mir-221 5'-stem side mir end	367042	ATCTACATTGTATGC	2151
mir-221	mir-221 5'-stem side mir end	367043	GAAATCTACATTGTA	2152
mir-221	mir-221 5'-stem side mir end	367044	ACAGAAATCTACATT	2153
mir-221	mir-221 5'-stem side mir end	367045	AACACAGAAATCTAC	2154
mir-221	mir-221 loop start	367046	CTGTTGCCTAACGAA	2155
mir-221	mir-221 loop start	367047	AGCTGTTGCCTAACG	2156
mir-221	mir-221 loop start	367048	GTAGCTGTTGCCTAA	2157
mir-221	mir-221 loop end	367049	GAACACAGAAATCTA	2158
mir-221	mir-221 loop end	367050	ACGAACACAGAAATC	2159
mir-221	mir-221 loop end	367051	TAACGAACACAGAAA	2160
mir-221	mir-221 loop end	367052	CCTAACGAACACAGA	2161
mir-221	mir-221 loop end	367053	TGCCTAACGAACACA	2162
mir-221	mir-221 3'-stem side mir start	367054	AATGTAGCTGTTGCC	2163
mir-221	mir-221 3'-stem side mir start	367055	GACAATGTAGCTGTT	2164
mir-221	mir-221 3'-stem side mir start	367056	GCAGACAATGTAGCT	2165
mir-221	mir-221 3'-stem side mir end	367057	AAACCCAGCAGACAA	2166
mir-221	mir-221 3'-stem side mir end	367058	AGCCTGAAACCCAGC	2167
mir-221	mir-221 3'-stem side mir end	367059	GGTAGCCTGAAACCC	2168
mir-221	mir-221 3'-stem side mir end	367060	CCAGGTAGCCTGAAA	2169
mir-221	mir-221 3'-stem side mir end	367061	TTTCCAGGTAGCCTG	2170

These modified oligomeric compounds targeting pri-miRNAs can be transfected into preadipocytes or other undifferentiated cells, which are then induced to differentiate, and it can be determined whether these modified oligomeric compounds act to inhibit or promote cellular differentiation. These compounds can be transfected into differentiating adipocytes and their effects on expression levels of the pri-miRNA molecules assessed in pre-adipocytes vs. differentiated adipocytes. By using a primer/probe set specific for the pri-miRNA or the pre-miRNA, real-time RT-PCR methods can be used to determine whether modified oligomeric compounds targeting pri-miRNAs can affect the expression or processing of the mature miRNAs from the pri-miRNA or pre-miRNA molecules.

Example 39: Effects of oligomeric compounds targeting miRNAs in the immune response

To investigate the role of miRNAs in the immune response, oligomeric compounds of the present invention targeting miRNAs were tested for their effects upon lipopolysaccharide (LPS)-activated primary murine macrophages. Macrophages participate in the immune

response, for example, in the recognition and phagocytosis of microorganisms, including bacteria. Interferon-gamma (IFN-gamma) released by helper T cells is one type of signal required for macrophage activation, and LPS can serve as an additional stimulus. LPS is a component of the gram-negative bacterial cell wall and acts as an agonist for toll-like receptor 4 (TLR4), the primary LPS receptor expressed by macrophages. The proinflammatory cytokines interleukin-12 (IL-12) and interleukin-6 (IL-6) are induced by LPS treatment of macrophages, thus the expression of the mRNAs encoding these cytokines was used to evaluate the response of macrophages to LPS following treatment with oligomeric compounds targeting miRNAs.

Macrophages were isolated as follows. Female C57Bl/6 mice (Charles River Laboratories, Wilmington, MA) were injected intraperitoneally with 1 ml 3% thioglycollate broth (Sigma-Aldrich, St. Louis, MO), and peritoneal macrophage cells were isolated by peritoneal lavage 4 days later. The cells were plated in 96-well plates at 40,000 cells/well for one hour in serum-free RPMI adjusted to contain 10mM HEPES (Invitrogen Life Technologies, Carlsbad, CA), allowed to adhere, then non-adherent cells were washed away and the media was replaced with RPMI containing 10mM HEPES, 10% FBS and penicillin/streptomycin ("complete" RPMI; Invitrogen Life Technologies, Carlsbad, CA).

Oligomeric compounds were introduced into the cells using the non-liposomal transfection reagent FuGENE 6 Transfection Reagent (Roche Diagnostics Corp., Indianapolis, IN). Oligomeric compound was mixed with FuGENE 6 in 1 mL of serum-free RPMI to achieve a concentration of 10 µL FuGENE per 1000 nM oligomeric compound. The oligomeric compound/FuGENE complex was allowed to form at room temperature for 20 minutes. This mixture was diluted to the desired concentration of oligomeric compound by the addition of the appropriate volume of complete RPMI. The final ratio of FuGENE 6 to oligomeric compound was 1 µL of FuGENE 6 per 100 nM oligomeric compound. A volume of 100 µL of oligomeric compound/FuGENE/RPMI was added to each well of the 96-well plate in which the macrophages were cultured. Each oligomeric compound treatment was repeated in triplicate.

Following oligomeric compound treatment, cells were stimultated with LPS. Cells were cultured in the presence of the transfection complex for approximately 24 to 28 hours at 37°C and 5% CO_2, after which the medium containing the transfection complex was removed from the cells, and complete RPMI containing 100 ng/mL LPS (Sigma-Aldrich Corp., St. Louis, MO) was added to the cells for a period of approximately 24 hours. Control samples included (1) cells receiving no oligomeric compound, stimulated with LPS and (2) cells receiving neither oligomeric compound nor LPS treatment.

In another embodiment, following oligomeric compound treatment, cells were first

activated by IFN-gamma, to amplify the response to LPS. Cells were cultured in the presence of the transfection complex for approximately 24 hours at 37°C and 5% CO_2, at which point the medium containing the transfection complex was removed from the cells, and complete RPMI containing 100 ng/mL recombinant mouse IFN-gamma (R&D Systems, Minneapolis, MN) was added to the cells. After the 4 hour treatment with INF-gamma, cells were treated with 100 ng/mL LPS for approximately 24 hours. Control samples included (1) cells receiving no oligomeric compound, stimulated with LPS and (2) cells receiving neither oligomeric compound nor LPS treatment.

Oligomeric compounds used as negative controls included ISIS 129690 (SEQ ID NO: 907), a universal scrambled control; ISIS 342673 (SEQ ID NO: 758), an oligomeric compound containing 15 mismatches with respect to the mature mir-143 miRNA; ISIS 342683 (SEQ ID NO: 790), an oligomeric compound representing the scrambled nucleotide sequence of an unrelated PTP1B antisense oligonucleotide; and ISIS 289606 (CCTTCCCTGAAGGTTCCTCC, incorporated herein as SEQ ID NO: 863), an oligomeric compound representing the scrambled nucleotide sequence of an unrelated PTP1B antisense oligonucleotide. ISIS 289606 is uniformly composed of 2'-MOE nucleotides, with phosphorothioate internucleoside linkages throughout the compound. All cytidines are 5-methyl cytidines. Used as a positive control was ISIS 229927 (CCACATTGAGTTTCTTTAAG, incorporated herein as SEQ ID NO: 2171), targeting the mouse toll-like receptor 4 (TLR4) mRNA, which is the primary LPS receptor on macrophages. ISIS 229927 is a chimeric oligomeric compound ("gapmer") composed of a central "gap" region consisting of ten 2'-deoxynucleotides, which is flanked on both sides (5' and 3' directions) by five nucleotide "wings," wherein the wings are composed of 2'-methoxyethoxy (2'-MOE) nucleotides. Internucleoside linkages are phosphorothioate throughout the compound, and all cytidines are 5-methylcytidines. Treatments with control oligomeric compounds were performed as described for oligomeric compounds targeting miRNAs.

Following the 24 hour treatment with LPS, the cells were lysed and RNA was isolated using the RNEASY 96™ kit, as described herein. mRNA expression was quantitated by real-time PCR, performed as described herein, using primer and probe sets to amplify and quantitate TLR4, IL-12 and IL-6 mRNA expression levels. Primers and probe for TLR4, designed using GenBank Accession number NM_021297.1, were: forward primer, 5'-CATGGAACACATGGCTGCTAA-3' (SEQ ID NO: 2172), reverse primer, 5'-GGAAAGGAAGGTGTCAGTGCTACT-3' (SEQ ID NO: 2173), probe 5'-FAM-TAGCATGGACCTTACCGGGCAGAAGG-TAMRA-3' (SEQ ID NO: 2174). Primers and probe for IL-12, designed using GenBank Accession number M86671.1, were: forward primer,

5'- GCCAGTACACCTGCCACAAA -3' (SEQ ID NO: 2175), reverse primer, 5'-GACCAAATTCCATTTTCCTTCTTG -3' (SEQ ID NO: 2176), probe 5'-FAM-AGGCGAGACTCTGAGCCACTCACATCTG-TAMRA-3' (SEQ ID NO: 2177). Primers and probe for IL-6, designed using GenBank Accession number X54542.1, were: forward primer, 5'-CCTAGTGCGTTATGCCTAAGCA-3' (SEQ ID NO: 2178), reverse primer, 5'-TTCGTAGAGAACAACATAAGTCAGATACC-3' (SEQ ID NO: 2179), probe 5'-FAM-TTTCTGACCACAGTGAGGAATGTCCACAA-TAMRA-3' (SEQ ID NO: 2180). The amount of total RNA in each sample was determined using a Ribogreen Assay (Molecular Probes, Eugene, OR), and expression levels of TLR4, IL-12 and IL-6 were normalized to total RNA.

TLR4 is the primary macrophage receptor for LPS. Thus, ISIS Number 229927, targeted to TLR4, was tested for its ability to inhibit TLR4 expression and interfere with the response of macrophages to LPS, both with and without pretreatment with IFN-gamma. The treatment of primary murine macrophages with ISIS Number 229927 at reduced the expression of TLR4 in a dose-dependent manner, in both LPS-stimulated and LPS- and IFN-gamma-stimulated cells. As judged by the dose-dependent reduction in IL-12, the response of macrophages to LPS was reduced following inhibition of the TLR4 receptor expression, in both LPS-stimulated and LPS- and IFN-gamma-stimulated cells. These results demonstrated that ISIS 229927 can be used as a positive control for the inhibition of IL-12 expression in macrophages responding to LPS.

Primary mouse macrophages were treated with a selected group of oligomeric compounds targeting various miRNAs. These compounds and their miRNA targets are shown in Table 72. Table 72 shows IL-12 mRNA expression following treatment with 300 nM of oligomeric compounds and LPS (- IFN), and IL-12 mRNA expression following treatment with 300 nM of oligomeric compounds and stimulation with IFN-gamma and LPS (+ IFN). The "– IFN" data represents a single experiment, and the "+ IFN" data represents the average of 2 experiments. Data were normalized to values from cells receiving no oligomeric compound that were treated with LPS. IL-12 expression in cells receiving neither oligomeric compound nor LPS treatment was 2% of the control, both with and without IFN-gamma pretreatment, demonstrating that IL-12 mRNA expression was not stimulated in the absence of LPS treatment. Where present, "N.D." indicates "not determined".

Table 72

IL-12 mRNA expression in primary macrophages treated with oligomeric compounds targeting miRNAs and stimulated with LPS

ISIS NO:	SEQ ID NO:	pri-miRNA	-IFN %UTC	+IFN %UTC
289606	863	Scrambled control	N.D.	129

342673	758	mismatch to mir-143	91	N.D.
129690	907	Universal control	73	129
229927	2171	TLR4	92	145
327874	292	mir-30a	202	15
327876	294	mir-29b-1	194	9
327883	301	mir-27b	266	39
327887	305	mir-132	287	33
327889	307	mir-23b	153	10
327890	308	let-7i	183	94
327893	311	let-7b	117	52
327899	317	mir-183	164	7
327901	319	mir-143	225	9
327903	321	let-7a-3	200	23
327912	330	let-7f-1	206	39
327913	331	mir-29c	276	73
327917	335	mir-21	225	35
327919	337	mir-221	179	37
327920	338	mir-222	171	68
327921	339	mir-30d	325	24
327923	341	mir-128b	269	134
327924	342	mir-129-2	171	88
327925	343	mir-133b	302	60
327927	345	mir-15b	164	33
327928	346	mir-29a-1	201	61
327931	349	let-7c	105	48
327935	353	mir-20	254	24
327936	354	mir-133a-1	221	55
327940	358	mir-199a-2	228	107
327941	359	mir-181b	89	34
327945	363	mir-24-2	202	68
327956	374	mir-216	212	59
327958	376	mir-187	188	60
327959	377	mir-210	183	20
327961	379	mir-223	203	10
327963	381	mir-26b	224	23
327967	385	let-7g	203	43
327971	389	mir-23a	146	17
328105	407	hypothetical miRNA-088	108	57
328110	412	hypothetical miRNA-107	221	8
328117	419	hypothetical miRNA-144	162	72
328123	425	hypothetical miRNA-166	176	14
328129	431	hypothetical miRNA-173	87	10
328133	435	hypothetical miRNA-178	165	62
328137	439	hypothetical miRNA-183	213	12
328138	440	hypothetical miRNA-185	277	31
340341	236	mir-104 (Mourelatos)	139	13
340345	1882	miR-27 (Mourelatos)	104	78
341786	1845	miR-149	266	99
341790	1843	miR-154	318	84
341793	1836	miR-142-as	202	147
341800	1766	miR-186	180	100
341811	1906	miR-194	154	88
341815	1831	miR-200a	190	157

A comparison of the data from IFN-gamma-stimulated and unstimulated cells reveals that many of the oligomeric compounds targeting miRNAs attenuated the response of macrophages to LPS, as judged by IL-12 mRNA expression, when the cells were activated with

IFN-gamma prior to LPS treatment. When macrophages were pretreated with IFN-gamma, treatment with several of the oligomeric compounds, such as ISIS Number 328110, ISIS Number 327901, ISIS Number 327899, ISIS Number 327876 and ISIS Number 327961 resulted in a reduction in IL-12 mRNA expression ranging from 20-fold to 30-fold. Other oligomeric compounds, such as ISIS Number 341800, ISIS Number 341811, ISIS Number 341793, ISIS Number 340345 and ISIS Number 341815 resulted in a less pronounced reduction in IL-12 mRNA expression ranging from 1.2-fold to 2-fold.

In a further embodiment, oligomeric compounds ISIS Number 327941 targeting mir-181b and ISIS Number 327921 targeting mir-30d were selected for a dose response study in LPS-stimulated primary macrophages, with and without IFN-gamma pre-treatment. Cells were treated as described herein, with oligomeric compound doses of 75, 150, 300 and 600 nM. Untreated control cells received no oligomeric compound treatment but did receive LPS treatment. ISIS 229927 (SEQ ID NO: 2171) was used as a positive control and ISIS 342683 (SEQ ID NO: 790), ISIS 126690 (SEQ ID NO: 907) and ISIS 289606 (SEQ ID NO: 863) were used as negative controls. IL-12 and IL-6 mRNA expression levels were measured by real-time PCR and normalized to untreated control cells that received LPS treatment. The IL-12 expression data, shown in Table 73, represent the average of 3 treatments. In cells receiving neither oligomeric compound nor LPS treatment, IL-12 expression was undetectable in IFN-gamma stimulated cells and was 1% of the untreated control in unstimulated cells.

Table 73

IL-12 mRNA expression following treatment of primary mouse macrophages with oligomeric compounds targeting mir-181b and mir-30d and LPS: dose response study

		IL-12 mRNA expression, %UTC							
		Dose of oligomeric compound							
ISIS NO:	SEQ ID NO:	75 nM		150 nM		300 nM		600 nM	
		-IFN	+IFN	-IFN	+IFN	-IFN	+IFN	-IFN	+IFN
327941	359	49	4	45	2	34	3	41	3
327921	339	109	14	88	7	67	5	53	5
229927	2171	67	46	53	35	45	16	46	8
342683	790	121	92	165	76	147	65	130	64
129690	907	114	66	109	54	101	66	128	81
289606	863	89	59	99	46	80	52	98	66

These data reveal that ISIS Number 327941 inhibited IL-12 expression in cells stimulated with LPS alone, where the percentage of untreated control ranged from 34% to 49%. ISIS Number 327921 inhibited IL-12 mRNA expression in a dose-dependent manner in cells stimulated with LPS alone, with the lowest IL-12 expression at 53% of untreated control. In

cells pretreated with IFN-gamma and subsequently treated with LPS, ISIS Number 327941 markedly reduced IL-12 mRNA expression to less than 5% of the untreated control at all doses. ISIS Number 327921 reduced IL-12 expression to 14% of the control at all 75 nM and to less than 10% of the untreated control at all other doses. Thus, ISIS Number 327941, targeting mir-181b, and ISIS Number 327921, targeting mir-30d, resulted in a greater reduction in IL-12 expression than ISIS 229927, which is targeted to TLR4.

The IL-6 expression data, shown in Table 74, represents the average of 3 treatments. In cells receiving neither oligomeric compound nor LPS treatment, IL-12 expression was undetectable in IFN-gamma stimulated cells and was 2% of the untreated control in unstimulated cells.

Table 74

IL-6 mRNA expression following treatment of primary mouse macrophages with oligomeric compounds targeting mir-181b and mir-30d and LPS: dose response study

		IL-6 mRNA expression, %UTC							
		Dose of oligomeric compound							
ISIS NO:	SEQ ID NO:	75 nM		150 nM		300 nM		600 nM	
		-IFN	+IFN	-IFN	+IFN	-IFN	+IFN	-IFN	+IFN
327941	359	293	181	325	197	271	197	501	301
327921	339	223	122	294	144	522	287	632	313
229927	2171	57	54	52	39	44	40	104	69
342683	790	135	115	161	86	156	110	311	149
129690	907	98	92	99	86	109	94	258	203
289606	863	77	78	68	69	65	70	77	59

These data reveal that, in contrast to IL-12 expression, IL-6 expression is increased in a dose-dependent manner following treatment with ISIS Number 327941 and ISIS Number 327921, in both IFN-gamma-stimulated and unstimulated cells. This is in contrast to treatment with ISIS 229927, which exhibited some reduction in IL-6 expression in both IFN-gamma-stimulated and unstimulated cells.

Abnormalities in the signaling pathways controlling the expression of cytokines and cytokine receptors have been implicated in a number of diseases. Compounds that modulate the activity of macrophages, for example, the response to foreign antigens such as LPS, are candidate therapeutic agents with application in the treatment of conditions involving macrophage activation, such as septic shock and toxic shock

The expression of mir-181 in mouse cells and tissues was evaluated by Northern blot. Mouse tissues RNA was purchased from Ambion, Inc. (Austin, TX). RNA was prepared from macrophages were prepared and stimulated with LPS as described herein. Northern blotting

was performed as described herein, and mir-181 levels were normalized to U6 levels, both of which were quantitated by Phosphorimager analysis. Expression levels are presented in arbitrary units. mir-181 was found to be most highly expressed in lung and kidney, at approximately equal levels. The next highest expression levels were found in brain, heart and liver. For example, as compared to kidney mir-181 expression levels, mir-181 was expressed approximately 2.5-fold lower in brain, approximately 2.2-fold lower in heart and approximately 1.8-fold lower in liver. mir-181 levels in both naïve and LPS-stimulated macrophages were 4.5-fold and 4.9-fold lower than in kidney, respectively. The lowest expression levels were found in thymus and spleen, which were 12.9-fold and 14.7-fold less as compared to kidney.

Example 40: Adipocyte assay of oligomeric compounds

The effect of several oligomeric compounds of the present invention targeting miRNA target nucleic acids on the expression of markers of cellular differentiation was examined in differentiating adipocytes.

As described in Example 13, some genes known to be upregulated during adipocyte differentiation include HSL, aP2, Glut4 and PPARγ. These genes play important roles in the uptake of glucose and the metabolism and utilization of fats. An increase in triglyceride content is another well-established marker for adipocyte differentiation.

For assaying adipocyte differentiation, expression of the four hallmark genes, HSL, aP2, Glut4, and PPARγ, as well as triglyceride (TG) accumulation were measured as previously described in adipocytes transfected with oligomeric compounds targeting miRNAs. Triglyceride levels as well as mRNA levels for each of the four adipocyte differentiation hallmark genes are expressed as a percentage of untreated control (UTC) levels. In this experiment, the negative control oligomeric compound was ISIS Number 342672 (SEQ ID NO: 789) or ISIS Number 342673 (SEQ ID NO: 758). Results are shown in Table 75. Each value represents at least one oligomeric compound treatment; data from more than one oligomeric compound treatment were averaged. Where present, "N.D." indicates "not determined".

Table 75

Effects of oligomeric compounds targeting miRNAs on expression of adipocyte differentiation markers

Isis Number	SEQ ID NO	Pri-miRNA	TG	HSL	aP2	GLUT4	PPAR gamma
UTC	N/A	N/A	100	100	100	100	100
327873	291	mir-140	105	116	113	106	104
327879	297	mir-7-1/mir-7-1*	59	103	103	99	81

327881	299	mir-128a	91	93	95	97	98
327885	303	mir-17/mir-91	29	57	69	40	59
327886	304	mir-123/mir-126	12	22	19	13	25
327887	305	mir-132	54	53	60	43	81
327891	309	mir-212	22	52	56	47	50
327895	313	mir-122a	76	88	90	76	86
327896	314	mir-22	22	37	43	35	52
327897	315	mir-92-1	28	39	62	32	66
327898	316	mir-142	102	92	96	82	101
327899	317	mir-183	25	27	47	14	62
327900	318	mir-214	26	21	32	12	55
327902	320	mir-192-1	55	56	58	15	56
327906	324	mir-103-1	25	37	46	14	50
327907	325	mir-26a-1	19	21	29	6	49
327910	328	mir-107	24	32	35	16	39
327911	329	mir-106	59	71	76	48	75
327912	330	let-7f-1	112	95	101	79	78
327916	334	mir-124a-2	56	64	67	51	71
327917	335	mir-21	26	26	32	15	54
327918	336	mir-144	65	85	91	66	74
327920	338	mir-222	20	14	22	0	34
327921	339	mir-30d	56	76	76	36	75
327923	341	mir-128b	88	64	65	54	77
327929	347	mir-199b	65	68	62	49	71
327935	353	mir-20	41	61	60	47	67
327936	354	mir-133a-1	23	40	40	6	47
327940	358	mir-199a-2	62	67	62	43	64
327943	361	mir-18	112	109	106	87	98
327944	362	mir-220	38	55	71	28	64
327945	363	mir-24-2	48	41	43	26	51
327946	364	mir-211	82	76	73	68	81
327949	367	mir-10a	43	49	52	20	54
327950	368	mir-19a	125	94	95	104	93
327952	370	mir-137	93	64	56	61	84
327957	375	mir-100-1	29	15	23	11	68
327958	376	mir-187	28	5	10	5	55
327959	377	mir-210	33	11	24	152	65
327961	379	mir-223	77	88	91	101	95
327962	380	mir-30c-1	64	77	75	58	80
327963	381	mir-26b	124	89	75	91	91
327964	382	mir-152	60	102	96	114	93
327965	383	mir-135-1	116	84	67	88	91
327966	384	mir-217	52	56	53	43	77
327968	386	sterol regulatory element-binding protein-1/ mir-33b	94	79	67	85	79
327969	387	mir-182	34	45	44	36	67
327970	388	mir-148a	48	25	29	27	46
327971	389	mir-23a	45	38	49	60	69
327972	390	mir-181c	67	70	70	75	85
328089	391	hypothetical miR-13/miR-190	67	55	50	59	79
328090	392	hypothetical miRNA-023	128	81	68	86	95

328091	393	hypothetical miRNA-30	48	40	46	26	85
328092	394	glutamate receptor, ionotrophic, AMPA 3/ hypothetical miRNA-033	134	80	74	78	86
328094	396	hypothetical miRNA-040	65	74	68	83	94
328095	397	hypothetical miRNA-041	110	83	70	98	92
328096	398	hypothetical miRNA-043	74	76	71	79	89
328097	399	hypothetical miRNA-044	65	54	48	62	63
328098	400	hypothetical miRNA-055	39	28	23	25	54
328099	401	hypothetical miRNA-058	57	74	80	61	72
328100	402	hypothetical miRNA-070	20	49	47	39	48
328101	403	LOC 114614 containing miR-155/ hypothetical miRNA-071	67	78	83	57	70
328102	404	hypothetical miRNA-075	70	99	96	58	94
328103	405	hypothetical miRNA-079	113	87	96	86	83
328104	406	hypothetical miRNA-083	64	81	94	83	73
328105	407	DiGeorge syndrome critical region gene 8/ hypothetical miRNA-088	82	95	102	75	85
328106	408	hypothetical miRNA-090	70	86	91	79	81
328107	409	hypothetical miRNA-099	51	55	68	52	71
328108	410	hypothetical miRNA-101	79	75	87	65	72
328109	411	hypothetical miRNA-105	23	62	68	55	69
328110	412	hypothetical miRNA-107	96	84	89	77	80
328111	413	hypothetical miRNA-111	65	77	79	50	65
328113	415	hypothetical miRNA-137	74	83	87	78	85
328115	417	hypothetical miRNA-142	53	75	74	84	80
328116	418	hypothetical miRNA-143	107	91	99	105	95
328117	419	collagen, type I, alpha 1/ hypothetical miRNA-144	16	18	28	13	42
328118	420	hypothetical miRNA-153	69	67	74	57	72
328119	421	hypothetical miRNA-154	109	101	119	104	102
328120	422	hypothetical miRNA-156	80	67	80	68	73
328121	423	hypothetical miRNA-161	119	110	119	115	105
328122	424	hypothetical miRNA-164	97	89	99	91	103
328123	425	hypothetical miRNA-166	54	91	119	129	88
328124	426	hypothetical miRNA-168-1/similar to ribosomal protein L5	108	96	118	105	92
328125	427	forkhead box P2/hypothetical miRNA-169	44	48	75	65	68
328126	428	hypothetical miRNA-170	108	135	120	107	98
328127	429	glutamate receptor, ionotropic, AMPA 2 / hypothetical miRNA-171	81	93	95	75	85
328128	430	hypothetical miRNA-172	61	72	90	73	86
328129	431	hypothetical miRNA-173	19	34	54	36	59
328130	432	hypothetical miRNA-175	91	64	72	55	77
328131	433	hypothetical miRNA-176	74	51	63	56	55
328133	435	hypothetical miRNA-178	43	49	66	59	53
328134	436	hypothetical miRNA-179	107	109	97	109	86

328135	437	cezanne 2/ hypothetical miRNA-180	29	20	34	19	33
328136	438	hypothetical miRNA-181	26	37	57	35	54
328137	439	tight junction protein 1 (zona occludens 1)/ hypothetical miRNA-183	37	25	45	29	36
328138	440	hypothetical miRNA-185	80	56	52	52	63
328139	441	hypothetical miRNA-188	90	116	100	85	91
340341	236	mir-104 (Mourelatos)	46	49	62	48	71
340343	1780	mir-105 (Mourelatos)	35	46	60	33	59
340348	848	mir-93 (Mourelatos)	48	57	68	52	78
340350	855	mir-95 (Mourelatos)	38	45	64	53	59
340352	1821	mir-99 (Mourelatos)	110	123	107	97	102
340354	1903	mir-25	64	56	72	61	74
340356	1853	mir-28	43	59	73	54	62
340358	1825	mir-31	23	24	47	21	42
340360	1865	mir-32	106	102	102	91	96
341791	1880	mir-30a	50	72	80	47	75
341795	1762	mir-199a-2	57	74	76	55	74
341796	1904	mir-131-1/mir-9	59	67	74	58	66
341797	1773	mir-17/mir-91	20	29	45	17	50
341798	1871	mir-123/mir-126	62	77	84	55	70
341799	1787	hypothetical miR-13/miR-190	98	103	101	89	89
341800	1766	mir-186	18	42	50	28	61
341801	1839	mir-198	65	89	90	77	82
341802	1806	mir-191	155	121	98	85	127
341803	760	mir-206	N.D.	79	85	73	68
341804	761	mir-94/mir-106b	N.D.	75	78	62	71
341805	762	mir-184	N.D.	86	90	74	77
341806	763	mir-195	N.D.	77	83	58	70
341807	764	mir-193	N.D.	102	82	101	83
344268	1774	mir-10b	57	44	46	22	53
344269	1890	mir-29c	42	35	41	28	48
344275	1912	mir-203	36	39	36	21	46
344276	1828	mir-204	66	68	72	49	72
344277	1767	mir-1d-2	75	57	61	45	68
344338	1812	mir-130a	103	89	86	66	91
344340	1921	mir-140	60	47	82	16	67
344341	1823	mir-218-1	50	33	42	14	49
344342	1814	mir-129-2	88	87	88	71	83
344343	1811	mir-130b	32	22	25	4	30
344611	1785	mir-240* (Kosik)	43	31	34	3	34
344612	1790	mir-232* (Kosik)	69	59	72	40	62
344613	1775	mir-227* (Kosik)/mir-226* (Kosik)	47	46	55	38	57
344614	1834	mir-227* (Kosik)/mir-226* (Kosik)	89	71	78	61	86
344615	1900	mir-244* (Kosik)	149	154	166	145	144
344616	1800	mir-224* (Kosik)	32	23	26	2	36
344617	1862	mir-248* (Kosik)	52	55	59	42	72
346685	1884	mir-27 (Mourelatos)	164	172	181	233	138
346686	1857	mir-101-1	73	80	83	73	83
346687	1802	mir-129-1	55	53	56	35	60

346688	1898	mir-182	33	39	48	12	55
346689	1830	mir-200b	59	63	79	45	64
346691	1870	mir-147 (Sanger)	56	69	69	64	79
346692	1889	mir-224 (Sanger)	35	18	26	11	28
346693	1838	mir-134 (Sanger)	69	66	77	65	81
346694	1763	mir-146 (Sanger)	31	18	41	5	32
346695	1824	mir-150 (Sanger)	69	73	72	58	78
346906	1781	mir-296 (RFAM/mmu)	83	70	77	70	80
346907	1815	mir-299 (RFAM/mmu)	47	36	50	37	51
346908	1881	mir-301 (RFAM/mmu)	75	71	77	65	77
346909	1902	mir-302 (RFAM/mmu)	66	64	68	64	77
346910	1866	mir-34a (RFAM/mmu)	80	69	78	63	83
346913	1795	let-7d	63	58	66	40	59
346914	1810	mir-94/mir-106b	41	27	48	16	41
346915	1784	mir-200a	73	67	83	75	90
346917	1826	mir-31	39	27	33	20	31
346919	1849	mir-93 (Mourelatos)	44	45	64	50	65
346920	1801	mir-96	63	53	70	61	70
346921	1759	mir-34	52	49	69	51	62
348116	1922	mir-320	43	58	79	48	76
348117	1860	mir-321-1	66	55	70	73	65
348119	1908	mir-142	91	76	81	86	90
348124	1820	mir-10b	53	43	59	41	63
348125	1878	mir-19b-1	79	64	67	65	64
348127	1869	mir-27b	155	150	185	201	130

Several compounds were found to have effects on adipocyte differentiation. For example, the oligomeric compounds ISIS Number 340348 (SEQ ID NO: 848), targeted to mir-93 (Mourelatos); ISIS Number 341798 (SEQ ID NO: 1871), targeted to mir-123/mir-126; ISIS Number 344340 (SEQ ID NO: 1921) targeted to mir-140; ISIS Number 346687 (SEQ ID NO: 1802), targeted to mir-129-1 and ISIS Number 348117 (SEQ ID NO: 1860), targeted to mir-321-1 were shown to significantly reduce the expression levels of 3 of the 5 markers of adipocyte differentiation. The effects of ISIS Number 327897 (SEQ ID NO: 315), targeted to mir-92-1, were even more pronounced, as shown by the significant reduction in expression of 4 of the 5 markers of differentiation. These data indicate that these oligomeric compounds have the ability to block adipocyte differentiation. Therefore, these oligomeric compounds may be useful as pharmaceutical agents with applications in the treatment, attenuation or prevention of obesity, hyperlipidemia, atherosclerosis, atherogenesis, diabetes, hypertension, or other metabolic diseases as well as having potential applications in the maintenance of the pluripotent phenotype of stem or precursor cells.

Other compounds were shown to stimulate adipocyte differentiation. For example, the oligomeric compounds ISIS Number 328121 (SEQ ID NO: 423), targeted to hypothetical miRNA-161; ISIS Number 344615 (SEQ ID NO: 1900), targeted to mir-244* (Kosik); ISIS

Number 346685 (SEQ ID NO: 1884), targeted to mir-27 (Mourelatos); and ISIS Number 348127 (SEQ ID NO: 1869), targeted to mir-27b resulted in significant increases in all 5 markers of adipocyte differentiation. Other oligomeric compounds, for example ISIS Number 340352 (SEQ ID NO: 1821), targeted to mir-99 (Mourelatos) and ISIS Number 328126 (SEQ ID NO: 428), targeted to hypothetical miRNA-170, resulted in increases in 4 of the 5 markers of adipocyte differentiaion. These oligomeric compounds may be useful as a pharmaceutical agents in the treatment of diseases in which the induction of adipocyte differentiation is desirable, such as anorexia, or for conditions or injuries in which the induction of cellular differentiation is desireable, such as Alzheimers disease or central nervous system injury, in which regeneration of neural tissue (such as from pluripotent stem cells) would be beneficial. Furthermore, this oligomeric compound may be useful in the treatment, attenuation or prevention of diseases in which it is desireable to induce cellular differentiation and/or quiescence, for example in the treatment of hyperproliferative disorders such as cancer.

In a further embodiment, oligomeric compounds of the present invention were tested for their effects on insulin signaling in HepG2 cells. As described in Example 18, insulin is known to regulate the expression of hepatic IGFBP-1, PEPCK-c and follistatin. Thus, the IGFBP-1, PEPCK-c and follistatin genes serve as marker genes for which mRNA expression can be monitored and used as an indicator of an insulin-resistant state. Oligomeric compounds with the ability to reduce expression of IGFBP-1, PEPCK-c and follistatin are highly desirable as agents potentially useful in the treatment of diabetes and hypertension.oligomeric compounds of the invention were tested for their effects on insulin signalling in liver-derived cells. For assaying insulin signalling, expression of IGFBP-1, PEPCK-c and follistatin mRNAs were measured as previously described in HepG2 cells transfected with oligomeric compounds targeting miRNAs and treated with either no insulin ("basal" Experiment 1, for identification of insulin-mimetic compounds) or with 1nM insulin ("insulin treated" Experiment 2, for identification of insulin sensitizers) for four hours. At the end of the insulin or no-insulin treatment, total RNA was isolated and real-time PCR was performed on all the total RNA samples using primer/probe sets for three insulin responsive genes: PEPCK-c, IGFBP-1 and follistatin. Expression levels for each gene are normalized to total RNA, and values are expressed relative to the transfectant only untreated control (UTC). In these experiments, the negative control oligomeric compound was ISIS Number 342672 (SEQ ID NO: 789) or ISIS Number 342673 (SEQ ID NO: 758). Results are shown in Tables 76 and 77. Each value represents at least one oligomeric compound treatment; data from more than one oligomeric compound treatment were averaged.

Table 76

Experiment 1: Effects of oligomeric compounds targeting miRNAs on insulin-repressed gene expression in HepG2 cells

Isis Number	SEQ ID NO	Pri-miRNA	Follistatin	IGFBP1	PEPCKc
UTC	N/A	N/A	100	100	100
327873	291	mir-140	97	108	72
327885	303	mir-17/mir-91	74	161	73
327886	304	mir-123/mir-126	82	176	61
327887	305	mir-132	113	119	83
327893	311	let-7b	93	107	81
327895	313	mir-122a	83	108	71
327897	315	mir-92-1	129	163	72
327899	317	mir-183	66	105	42
327900	318	mir-214	111	102	88
327911	329	mir-106	81	157	52
327916	334	mir-124a-2	108	102	88
327918	336	mir-144	75	95	81
327920	338	mir-222	99	165	52
327923	341	mir-128b	86	116	83
327946	364	mir-211	103	108	90
327949	367	mir-10a	112	112	81
327950	368	mir-19a	83	109	65
327952	370	mir-137	93	123	70
327957	375	mir-100-1	69	143	59
327958	376	mir-187	91	119	73
327959	377	mir-210	98	124	139
327961	379	mir-223	113	150	98
327963	381	mir-26b	101	108	92
327964	382	mir-152	97	100	74
327965	383	mir-135-1	95	106	63
341800	1766	mir-186	105	114	71
341801	1839	mir-198	85	99	73
341802	1806	mir-191	136	186	98
341803	760	mir-206	68	107	110
341804	761	mir-94/mir-106b	63	162	44
341805	762	mir-184	63	105	40
341806	763	mir-195	75	128	79
341807	764	mir-193	102	129	97
341808	1861	mir-185	96	113	64

Under "basal" conditions (without insulin), treatments of HepG2 cells with oligomeric compounds of the present invention resulting in decreased mRNA expression levels of the PEPCK-c, IGFBP-1 and/or follistatin marker genes indicate that the oligomeric compounds have an insulin mimetic effect. Treatments with oligomeric compounds of the present invention resulting in an increase in mRNA expression levels of the PEPCK-c, IGFBP-1 and/or follistatin

marker genes indicate that these compounds inhibit or counteract the normal insulin repression of mRNA expression of these genes.

From these data, it is evident that the oligomeric compounds, ISIS Number 327886 (SEQ ID NO: 304), targeting mir-123/mir-126; ISIS Number 327899 (SEQ ID NO: 317), targeting mir-183; ISIS Number 327911 (SEQ ID NO: 329), targeting mir-106; ISIS Number 327920 (SEQ ID NO: 338), targeting mir-222; ISIS Number 341804 (SEQ ID NO: 761), targeting mir-94/mir-106b; and ISIS Number 341805 (SEQ ID NO: 762), targeting mir-184, for example, resulted in 39%, 58%, 48%, 48%, 56% and 60% reductions, respectively, in PEPCK-c mRNA, a marker widely considered to be insulin-responsive. Thus, these oligomeric compounds may be useful as pharmaceutic agents comprising insulin mimetic properties in the treatment, amelioration, or prevention of diabetes or other metabolic diseases.

Conversly, the results observed with the oligomeric compounds targeting mir-92-1 (ISIS Number 327897, SEQ ID NO: 315), mir-10a (ISIS Number 327949, SEQ ID NO: 367), mir-223 (ISIS Number 327961, SEQ ID NO: 379) and mir-191 (ISIS Number 341802, SEQ ID NO: 1806), for example, exhibited increased expression of the IGFBP-1 and follistatin marker genes, suggesting that the mir-92-1, mir-10a, mir-223, and mir-191 miRNA targets may be involved in the regulation of these insulin-responsive genes. When these miRNAs are inactivated by an oligomeric compound, IGFBP-1 and follistatin gene expression is no longer repressed. Similarly, treatment oligomeric compounds targeting mir-210 (ISIS Number 327959, SEQ ID NO: 377)) and mir-206 (ISIS Number 341803, SEQ ID NO: 760) resulted in increases in the IGFBP-1 and PEPCK-c marker genes, suggesting that mir-210 and mir-206 may be involved in the regulation of these insulin-responsive genes.

Table 77

Experiment 2: Effects of oligomeric compounds targeting miRNAs on insulin-sensitization of gene expression in HepG2 cells

Isis Number	SEQ ID NO	Pri-miRNA	Follistatin	IGFBP1	PEPCKc
UTC + 1 nM insulin	N/A	N/A	100	100	100
327897	315	mir-92-1	123	243	78
327911	329	mir-106	71	160	78
327916	334	mir-124a-2	98	128	88
327918	336	mir-144	76	81	107
327920	338	mir-222	102	267	59
327923	341	mir-128b	106	119	125
327946	364	mir-211	109	138	99
327949	367	mir-10a	111	172	101

327950	368	mir-19a	89	124	82
327952	370	mir-137	100	103	85
327957	375	mir-100-1	73	184	88
327958	376	mir-187	112	149	106
327959	377	mir-210	92	141	156
327961	379	mir-223	128	160	126
327963	381	mir-26b	95	111	94
327964	382	mir-152	114	121	122
327965	383	mir-135-1	79	105	64
328114	416	hypothetical miRNA-138	81	177	41
328115	417	hypothetical miRNA-142	91	120	59
328125	427	forkhead box P2/hypothetical miRNA-169	107	216	77
328342	451	mir-203	88	98	39
328343	452	mir-7-1/mir-7-1*	139	135	69
328358	467	mir-123/mir-126	106	165	93
328367	476	mir-212	107	141	85
328377	486	hypothetical miRNA-30	159	247	182
328396	505	mir-205	135	128	65
328397	506	mir-103-1	75	57	76
328423	532	mir-19b-2	114	69	77
328649	558	mir-20	69	115	86
328702	611	mir-10a	88	83	96
328761	670	hypothetical miRNA-138	53	193	64
328764	673	hypothetical miRNA-142	128	145	68
328769	678	mir-26b	84	110	100
328774	683	sterol regulatory element-binding protein-1/ mir-33b	68	100	77
328776	685	forkhead box P2/hypothetical miRNA-169	114	86	125

For HepG2 cells treated with 1nM insulin, treatments with oligomeric compounds of the present invention resulting in a decrease in mRNA expression levels of the PEPCK-c, IGFBP-1 and/or follistatin marker genes indicate that these compounds have an insulin sensitization effect. Treatments with oligomeric compounds of the present invention resulting in an increase in mRNA expression levels of the PEPCK-c, IGFBP-1 and/or follistatin marker genes indicate that these compounds inhibit or counteract the normal insulin response of repression of mRNA expression of these genes.

From these data, it is evident that the oligomeric compounds, ISIS Number 327920 (SEQ ID NO: 338), targeting mir-222; ISIS Number 328114 (SEQ ID NO: 416), targeting hypothetical miRNA-138; ISIS Number 328115 (SEQ ID NO: 417), targeting hypothetical miRNA-142; and ISIS Number 328342 (SEQ ID NO: 451) targeting mir-203, for example, were observed to result in a 41%, a 59%, a 41% and a 61% reduction, respectively, of PEPCK-c

mRNA expression, widely considered to be a marker of insulin-responsiveness. Thus, these oligomeric compounds may be useful as pharmaceutic agents with insulin-sensitizing properties in the treatment, amelioration, or prevention of diabetes or other metabolic diseases.

Conversly, the results observed with the oligomeric compounds targeting mir-128b (ISIS Number 327923, SEQ ID NO: 341), mir-223 (ISIS Number 327961, SEQ ID NO: 379), mir-152 (ISIS Number 327964, SEQ ID NO: 382) and hypothetical miRNA-30 (ISIS Number 328377, SEQ ID NO: 486), all exhibiting increased expression of the IGFBP-1, PEPCK-c and follistatin marker genes, support the conclusion that the mir-128b, mir-223, mir-152 and hypothetical miRNA-30 may be involved in the regulation of insulin-responsive genes. When these miRNAs are inactivated by the oligomeric compounds of the present invention, IGFBP-1, PEPCK-c and follistatin gene expression is no longer repressed or insulin-sensitive.

Various modifications of the invention, in addition to those described herein, will be apparent to those skilled in the art from the foregoing description. Such modifications are also intended to fall within the scope of the appended claims. Each reference (including, but not limited to, journal articles, U.S. and non-U.S. patents, patent application publications, international patent application publications, gene bank accession numbers, and the like) cited in the present application is incorporated herein by reference in its entirety. U.S. provisional applications Serial No. 60/492,056 filed July 31, 2003, Serial No. 60/516,303 filed October 31, 2003, Serial No. 60/531,596 filed December 19, 2003, and Serial No. 60/562,417 filed April 14, 2004, are each incorporated herein by reference in its entirety.

What is claimed is:

1. An oligomeric compound comprising a first region and a second region, wherein:

at least one region contains a modification; and

a portion of the oligomeric compound is targeted to a small non-coding RNA target nucleic acid, wherein the small non-coding RNA target nucleic acid is a miRNA, or any precursor thereof.

2. An oligomeric compound of claim 1 wherein the oligomeric compound is targeted to a miRNA.

3. An oligomeric compound of claim 2 wherein the miRNA is mir-10a, mir-15a-1, mir-15a-2, mir-15b, mir-16-1, mir-16-2, mir-16-3, mir-19b-2, mir-21, mir-22, mir-23a, mir-23b, mir-24-2, mir-26a, mir-27b, mir-29a-1, mir-29b-1, mir-29b-2, mir-29c, mir-30a, mir-30b, mir-30d, mir-92-1, mir-92-2, mir-93, mir-94/mir-106b, mir-96, mir-100-1, mir-103-1, mir-106, mir-107, mir-123/mir-126, mir-123/mir-126as, mir-125b-1, mir-128b, mir-129-1, mir-130b, mir-131-1/mir-9, mir-131-2/mir-9, mir-131-3/mir-9, mir-133b, mir-138, mir-140, mir-141, mir-143, mir-144, mir-145, mir-152, mir-161, mir-173, mir-181a-1, mir-182, mir-183, mir-184, mir-187, mir-191, mir-192-1, mir-196-1, mir-196-2, mir-203, mir-205, mir-206, mir-213/mir-181a, mir-210, mir-211, mir-215, mir-216, mir-217, mir-219, mir-220, mir-221, mir-222, mir-223, mir-321-1, hypothetical miRNA-30, hypothetical miRNA-039, hypothetical miRNA-111, hypothetical miRNA-120, hypothetical miRNA-138, hypothetical miRNA-142, hypothetical miRNA-144, hypothetical miRNA-154, hypothetical miRNA-161, hypothetical miRNA-170, hypothetical miRNA-179, hypothetical miRNA-181, mir-27 (Mourelatos), mir-93 (Mourelatos), mir-95 (Mourelatos), mir-99 (Mourelatos), or mir-244* (Kosik), or a precursor thereof.

4. The oligomeric compound of claim 1 wherein the oligomeric compound is targeted to a region flanking a Drosha cleavage site within a pri-miRNA.

5. The oligomeric compound of claim 1 wherein the oligomeric compound stimulates an increase in expression of a pri-miRNA.

6. An oligomeric compound of claim 1 further modified to comprise one or more stabilizing groups attached to one or both termini of the oligomeric compound.

7. An oligomeric compound of claim 6 wherein the stabilizing group is a cap structure.

8. A compound of claim 1 wherein the oligomeric compound is an miRNA mimic 17 to 25 nucleotides in length.

9. An oligomeric compound having a sequence essentially complementary to a target RNA, wherein the oligomeric compound comprises an isolated or purified oligomeric compound, wherein the oligomeric compound is 15 to 30 nucleotides in length, wherein the

oligomeric compound comprises a sequence corresponding to a portion of the sequence of a larger oligonucleotide, and wherein the larger oligonucleotide includes a stemloop structure.

10. An oligomeric compound of claim 9 wherein the oligomeric compound includes at least one modified subunit.

11. An oligomeric compound of claim 9 wherein the oligomeric compound is 17 to 25 subunits in length.

12. An oligomeric compound of claim 9 wherein the oligomeric compound has a sequence corresponding to a portion of one of the stems of the stemloop structure of the larger oligonucleotide.

13. An oligomeric compound of claim 12 wherein the oligomeric compound comprises a sequence corresponding to a portion of the 5' stem of the larger oligonucleotide or a portion of the 3' stem of the larger oligonucleotide.

14. An oligomeric compound comprising a sequence recited in any one of Tables herein.

15. A composition comprising a first oligomeric compound and a second oligomeric compound, wherein:

at least one of the first or second oligomeric compounds contains a modification;

at least a portion of the first oligomeric compound is capable of hybridizing with at least a portion of the second oligomeric compound; and

at least a portion of the first oligomeric compound is targeted to a small non-coding RNA target nucleic acid, wherein the small non-coding RNA target nucleic acid is a miRNA, or any precursor thereof.

16. A composition of claim 15 wherein the first and said second oligomeric compounds are oligonucleotides.

17. A composition of claim 15 wherein the first and second oligomeric compounds comprise an antisense/sense pair of oligonucleotides.

18. A composition of claim 15 wherein each of the first and second oligomeric compounds comprises 17 to 25 nucleotides.

19. A composition of claim 15 wherein the first oligomeric compound comprises an antisense oligonucleotide.

20. A composition of claim 19 wherein the second oligomeric compound comprises a sense oligonucleotide.

21. A composition of claim 19 wherein the second oligomeric compound comprises an oligonucleotide having a plurality of ribose nucleotide units.

22. The composition of claim 15 wherein the miRNA is mir-30a or a precursor thereof.

23. A pharmaceutical composition comprising the composition of claim 15 and a pharmaceutically acceptable carrier.

24. A kit or assay device comprising the composition of claim 15.

25. A method of modulating the expression of a small non-coding RNA target nucleic acid in a cell, tissue, or animal comprising contacting the cell, tissue, or animal with a composition of claim 15 or with the oligomeric compound of claim 1.

26. A method of treating or preventing a disease or disorder associated with a small non-coding RNA target nucleic acid comprising contacting an animal having or predisposed to the disease or disorder with a therapeutically effective amount of a composition of claim 15 or compound of claim 1.

27. A method of claim 26 wherein the disease or disorder is a result of chromosomal nondisjunction, an altered methylation state of chromosomes, an altered acetylation state of chromosomes, or an altered pseudouridylation state of chromosomes.

28. A method of claim 26 wherein the disease or disorder is a hyperproliferative condition, diabetes, obesity, hyperlipidemia, atherosclerosis, atherogenesis, hypertension, anorexia, Alzheimers disease, a central nervous system injury, or neurodegenerative disorder.

29. The method of claim 28 wherein the hyperproliferative condition is cancer, neoplasia, or angiogenesis.

30. A method of claim 28 wherein the diabetes is Type 2 diabetes.

31. A method of claim 26 wherein the miRNA is a let-7 homolog, mir-10a, mir-19b-2, mir-23b, mir-29a-1, mir-29b, mir-30b, mir-92-1, mir-93 (Mourelatos), mir-94/mir-106b, mir-106, mir-123/mir-126, mir-123/mir-126as, mir-125b-1, mir-129-1, mir-131-1/mir-9, mir-131-2/mir-9, mir-131-3/mir-9, mir-133b, mir-138, mir-140, mir-141, mir-143, mir-144, mir-145, mir-161, mir-173, mir-181, mir-182, mir-183, mir-184, mir-187, mir-191, mir-192-1, mir-196, mir-196-2, mir-203, mir-206, mir-210, mir-217, mir-220, mir-221, mir-222, mir-223 or mir-321-1, or a precursor thereof.

32. A method of treating a condition in an animal comprising contacting an animal with an oligomeric compound comprising a first region and a second region, wherein at least one region contains a modification, and wherein a portion of the oligomeric compound can hybridize to a small non-coding RNA target nucleic acid, wherein the small non-coding RNA target nucleic acid is a miRNA, a small temporal RNA, siRNA, small non-messenger RNA, a small nuclear RNA, a small nucleolar RNA, a tiny noncoding RNA, a rasiRNA, or any precursor thereof, and wherein adipocyte differentiation is stimulated in the animal.

33. A method of treating or preventing a disease or disorder associated with CD36

comprising contacting an animal having or predisposed to the disease or disorder with a therapeutically effective amount of single or double-stranded mimics of mir-15 or mir-16.

34. A method of screening an oligomeric compound for an effect on miRNA signaling comprising:

contacting a cell with a vector that expresses a miRNA precursor, wherein the miRNA precursor can produce a miRNA;

contacting the cell with the oligomeric compound;

contacting the cell with a reporter vector that comprises a target site for the miRNA that is produced by the miRNA precursor; and

assaying the cell or lysate therefrom for reporter vector activity, wherein a reduction of reporter vector activity indicates that the oligomeric compound has no effect on miRNA signaling, and wherein an increase in reporter vector activity indicates that the oligomeric compound has an effect on miRNA signaling.

35. A method of claim 34 wherein the cell is a 293T cell.

36. A method of claim 34 wherein the miRNA is mir-30a.

37. A method of claim 34 wherein the reporter vector comprises four tandem repeats of the target site for mir-30a.

38. A method of claim 34 wherein the oligomeric compound is a chimeric oligonucleotide gapmer comprising a central gap region consisting of ten 2'-deoxynucleotides, which is flanked on both sides by five-nucleotide wings.

39. A method of claim 38 wherein the wings comprise 2'-methoxyethoxy nucleotides.

40. A method of claim 39 wherein all cytidine residues are 5-methylcytidines.

41. A method of claim 34 wherein the oligomeric compound comprises 2'-methoxyethoxy nucleotides throughout with either phosphorothioate or phosphodiester internucleoside linkages.

42. A method of claim 34 wherein the oligomeric compound targets the pre-loop of the miRNA precursor or forms a pseudo half-knot compound with the miRNA precursor.

43. A method of screening a miRNA precursor for an effect on miRNA signaling comprising:

contacting a cell with a miRNA precursor, wherein the miRNA precursor can produce a miRNA, and wherein the miRNA precursor is 110 to 450 nucleotides in length;

contacting the cell with a reporter vector that comprises a target site for the miRNA that is produced by the miRNA precursor;

assaying the cell or lysate therefrom for reporter vector activity; and

comparing the amount of reporter activity from the cell contacted with the miRNA

precursor, or lysate therefrom, to the amount of reporter activity from a cell not contacted with the miRNA precursor, or lysate therefrom, wherein a lower amount of reporter activity from the cell contacted with the miRNA precursor, or lysate therefrom, relative to the amount of reporter activity from the cell not contacted with the the miRNA precursor, or lysate therefrom, indicates that the miRNA precursor has an effect on miRNA signaling.

44. The method of claim 43 further comprising:

contacting the cell with an oligomeric compound targeted to the miRNA or miRNA precursor, wherein an increase in reporter vector activity indicates that the oligomeric compound affects miRNA signaling.

45. A method of claim 43 wherein the cell is a HeLa cell.

46. A method of claim 43 wherein the miRNA is mir-143, mir-21, mir-23b, or mir-15a, or a precursor thereof.

47. A method of claim 43 wherein the reporter vector comprises two or more tandem repeats of the target site for the miRNA.

48. A method of screening an oligomeric compound for an effect on miRNA signaling comprising:

contacting a cell with an oligomeric compound that mimics a miRNA precursor, wherein the oligomeric compound that mimics the miRNA precursor can produce a miRNA;

contacting the cell with a reporter vector that comprises a target site for the miRNA produced by the oligomeric compound that mimics the miRNA precursor;

assaying the cell or lysate therefrom for reporter vector activity; and

comparing the amount of reporter activity from the cell contacted with the oligomeric compound that mimics the miRNA precursor, or lysate therefrom, to the amount of reporter activity from a cell not contacted with the oligomeric compound that mimics the miRNA precursor, or the lysate therefrom, wherein a lower amount of reporter activity from the cell contacted with the oligomeric compound that mimics the miRNA precursor, or lysate therefrom, relative to the amount of reporter activity from the cell not contacted with the oligomeric compound that mimics the miRNA precursor, or the lysate therefrom, indicates that the oligomeric compound has an effect on miRNA signaling.

49. The method of claim 48 further comprising contacting the cell with a second oligomeric compound targeted to the oligomeric compound that mimics the miRNA precursor, wherein an increase in reporter vector activity indicates that the second oligomeric compound effects miRNA signaling.

50. The method of claim 48 wherein the cell is a HeLa cell.

51. A method of claim 48 wherein the miRNA is mir-143, mir-23b, mir-21, or mir-15a, or a precursor thereof.

52. A method of claim 48 wherein the reporter vector comprises multiple target sites for the miRNA or mimic.

53. A method of any of claims 34, 43, or 48 wherein the reporter vector comprises a target site originally found within the coding sequence of an mRNA.

54. A method of any of claims 34, 43, or 48 wherein the target site is cloned into the 3'-UTR of the reporter vector.

55. A method of any of claims 34, 43, or 48 wherein the reporter vector is a luciferase reporter vector and the reporter vector activity is luciferase expression.

56. A method of any of claims 34, 43, or 48 wherein miRNA precursor is produced *in vitro* using T7 RNA polymerase and a DNA template produced by polymerase chain reaction.

57. A method of claim 49 wherein the second oligomeric compound comprises a phosphorothioate or phosphodiester backbone throughout.

58. A method of claim 44 or 49 wherein the oligomeric compound or second oligomeric compound, respectively, is a chimeric oligonucleotide gapmer comprising a central gap region consisting of ten 2'-deoxynucleotides, which is flanked on both sides by five-nucleotide wings.

59. A method of claim 58 wherein the wings comprise 2'-methoxyethoxy nucleotides.

60. A method of claim 59 wherein all cytidine residues are 5-methylcytidines.

61. A method of claim 44 or 49 wherein the oligomeric compound or second oligomeric compound, respectively, comprises 2'-methoxyethoxy nucleotides throughout with either phosphorothioate or phosphodiester internucleoside linkages.

62. A method of claim 44 or 49 wherein the oligomeric compound or second oligomeric compound, respectively, targets the pre-loop of the miRNA precursor or forms a pseudo half-knot compound with the miRNA precursor.

63. A method of modulating translation comprising:

contacting a system with one or more oligomeric compounds that specifically hybridize to a small non-coding RNA nucleic acid, wherein the small non-coding RNA nucleic acid is a miRNAor any precursor thereof; and

assaying the oligomeric compounds for oligomeric compounds that modulate translation of an endogenous gene regulated by the small non-coding RNA nucleic acid.

64. A method of claim 63 wherein the modulation is measured by a western blot of the protein encoded by the endogenous gene.

65. A method of modulating translation comprising:

contacting a system with one or more oligomeric compounds that mimic a small non-coding RNA nucleic acid, wherein the small non-coding RNA nucleic acid is a miRNA, or any precursor thereof; and

assaying the oligomeric compounds for oligomeric compounds that modulate translation of an endogenous gene regulated by the small non-coding RNA nucleic acid.

66. A method of claim 65 wherein the modulation is measured by a western blot of the protein encoded by the endogenous gene.

67. A method of modulating apoptosis comprising contacting a system with one or more oligomeric compounds that specifically hybridize to a small non-coding RNA nucleic acid, wherein the small non-coding RNA nucleic acid is a miRNA, or any precursor thereof.

68. A method of claim 67 wherein the modulation is measured by a caspase assay.

69. A method of modulating apoptosis comprising contacting a system with one or more oligomeric compounds that mimic a small non-coding RNA nucleic acid, wherein the small non-coding RNA nucleic acid is a miRNA, or any precursor thereof.

70. A method of claim 69 wherein the modulation is measured by a caspase assay.

71. A method of modulating conversion of a precursor miRNA into a miRNA comprising:

assaying a library of oligomeric compounds for oligomeric compounds that bind to the precursor miRNA, wherein the precursor miRNA is from 50 to 110 nucleotides in length and has a hairpin structure, and wherein the precursor miRNA is a substrate for an RNAse III enzyme;

selecting one or more of the oligomeric compounds; and

contacting the precursor miRNA with the one or more selected oligomeric compounds to modulate the interaction of the RNAse III enzyme and the precursor miRNA.

72. A method of claim 71 wherein the contacting comprises inhibiting processing of the precursor miRNA to the miRNA by the RNAse III enzyme.

73. A method of modulating cellular differentiation comprising contacting a cell or tissue with an oligomeric compound comprising a first region and a second region, wherein at least one region contains a modification, and wherein a portion of the oligomeric compound can hybridize to a small non-coding RNA target nucleic acid, wherein the small non-coding RNA target nucleic acid is a miRNA, or any precursor thereof.

74. A method of claim 73 wherein the cell or tissue is an adipocyte cell or tissue.

75. A method of claim 73 wherein the small non-coding RNA target nucleic acid is mir-145.

76. A method of identifying an RNA transcript bound to a small non-coding RNA comprising:

isolating RNA from a cell;

producing and amplifying cDNA from the isolated RNA;

performing 5' RACE-PCR using the small non-coding RNA as a primer;

performing 3' RACE-PCR using the antisense of the small non-coding RNA as a primer; and

identifying RACE-PCR products.

77. A method of claim 76 wherein the RNA transcript is an mRNA encoding the human HSPC056 protein, a transcript encoding UNR, aminolevulinate, delta-, dehydratase (ALAD), valosin-containing protein (VCP), or caveolin, and the small non-coding RNA is mir-143.

78. A method of arresting or delaying entry of a cell at the G2/M phase comprising contacting a cell with one or more oligomeric compounds that specifically hybridize to a small non-coding RNA nucleic acid, wherein the small non-coding RNA nucleic acid is a miRNA, or any precursor thereof.

79. The method of claim 78 wherein the oligomeric compound targets mir-143, mir-203, mir-103-1, mir-106, mir-145, mir-205, mir-131/mir-9, mir-213/mir-181a-2, mir-26a-1, mir-192, mir-182, mir-100-1, mir-30d, mir-106, mir-216, mir-23a, mir-96, mir-130b, mir-95 (Mourelatos), or a precursor thereof.

80. A method of interfering with chromosome segregation comprising contacting a cell with one or more oligomeric compounds that specifically hybridize to a small non-coding RNA nucleic acid, wherein the small non-coding RNA nucleic acid is a miRNA, or any precursor thereof.

81. The method of claim 80 wherein the oligomeric compound targets mir-26a, mir-144, mir-205, mir-216, mir-181a, or mir-92-2, or a precursor thereof.

82. A method of triggering apoptosis comprising contacting a cell with one or more oligomeric compounds that specifically hybridize to a small non-coding RNA nucleic acid, wherein the small non-coding RNA nucleic acid is a miRNA, or any precursor thereof.

83. The method of claim 82 wherein the oligomeric compound targets mir-203, mir-103-1, mir-26a, mir-93, mir-192, mir-106, or mir-205, or a precursor thereof.

84. A method of detecting a miRNA precursor comprising:

contacting a cell or a tissue with an oligomeric compound targeting human Dicer; and determining the amount of miRNA precursor.

85. The method of claim 84 wherein the amount of miRNA precursor is determined by Northern blot, real-time RT-PCR or RPA.

86. The method of claim 85 wherein the amount is determined qualitatively or

quantitatively.

87. A method of identifying a miRNA target comprising:

contacting a cell or a tissue with an oligomeric compound targeting human Dicer to modulate the amount of mature miRNAs in the cell or tissue;

isolating total RNA or protein from the cell or tissue;

comparing the amount of at least one target RNA or protein from a cell or tissue not contacted with the oligomeric compound to the amount of the same target RNA or protein in a cell or tissue contacted with the oligomeric compound; and

identifying at least one target RNA or protein for which there is a change in amount.

88. The method of claim 87 wherein the amount of mature miRNAs is decreased.

89. A method of modulating cellular differentiation comprising contacting a cell or tissue with an oligomeric compound targeting human Dicer to modulate the amount of miRNA precursors in the cell or tissue.

90. The method of claim 89 wherein the cell or tissue is an adipocyte cell or tissue.

91. A method of modulating apoptosis comprising contacting a cell or a tissue with an oligomeric compound targeting human Dicer to modulate the amount of miRNA precursors in the cell or tissue.

92. The method of claim 91 wherein apoptosis is measured by the caspase assay.

93. The method of claim 91 wherein the caspase assay indicates an increase in caspase activity.

94. A method of treating a condition associated with adipocyte differentiation in an animal comprising contacting the animal with an oligomeric compound comprising a first region and a second region, wherein at least one region contains a modification, and wherein a portion of the oligomeric compound can hybridize to human Dicer mRNA.

95. A method of treating or preventing a disease or disorder associated with aberrant regulation of the cell cycle by miRNAs comprising contacting the animal having or predisposed to having the disease or disorder with a therapeutically effective amount of an oligomeric compound targeting human Dicer.

96. The method of claim 95 further comprising identifying the animal having or predisposed to having the disease or disorder prior to treatment or prevention.

97. A method of claim 95 wherein the disease or disorder is a hyperproliferative condition, diabetes, obesity, hyperlipidemia, atherosclerosis, atherogenesis, or hypertension.

98. The method of claim 97 wherein the hyperproliferative condition is cancer, neoplasia, or angiogenesis.

99. The method of claim 97 wherein the diabetes is Type 2 diabetes.

100. A method of maintaining a pluripotent stem cell comprising contacting the cell with an effective amount of an oligomeric compound targeting human Dicer.

101. The method of claim 100 wherein the pluripotent stem cell is present in a sample of cord blood, bone marrow, or a cell line.

102. The method of claim 101 wherein the pluripotent stem cell is an embryonic stem cell.

103. A method of identifying a small non-coding RNA binding site comprising:

computationally deriving 30-nucleotide windows in a target nucleic acid, starting with the first nucleotide of the sequence and defining the first nucleotide in each window by shifting 1 nucleotide in the 3' direction;

assessing the bimolecular hybridization free energy of each interaction of a miRNA with the sequence in each window of the target nucleic acid and disallowing unimolecular interactions;

plotting the resulting bimolecular hybridization free energy value against the start position of each window; and

identifying those interactions with the most negative bimolecular hybridization free energy values.

104. The method of claim 103 wherein the binding site is identified in the coding sequence, 5'-UTR, or 3'-UTR of an mRNA transcript.

105. The method of claim 103 wherein the target nucleic acid is an mRNA encoding the human ERK5 protein (GenBank Accession NM_139032.1), and the miRNA is mir-143.

106. A composition comprising a first oligomeric compound and a second oligomeric compound forming a structure wherein:

the second oligomeric compound comprises a 3' dangling region comprising seven nucleotides, a second side of a first stem comprising seven nucleotides, a second side of a first internal loop comprising two nucleotides, a second side of a second stem comprising three nucleotides, a second side of a second internal loop comprising one nucleotide, a second side of a third stem comprising three nucleotides, a second side of a third internal loop comprising one nucleotide, a second side of a forth stem comprising five nucleotides, and a 5' dangling region comprising one nucleotide; and

the first oligomeric compound comprises a first side of the first stem comprising seven nucleotides, a first side of the first internal loop comprising one nucleotide, a first side of the second stem comprising three nucleotides, a first side of the second internal loop comprising one nucleotide, a first side of the third stem comprising three nucleotides, a first side of the third

internal loop comprising two nucleotides, and a first side of the forth stem comprising five nucleotides.

107. A composition comprising a first oligomeric compound and a second oligomeric compound forming a structure wherein:

the second oligomeric compound comprises a 3' dangling region comprising seven nucleotides, a second side of a first stem comprising three nucleotides, a second side of a first internal loop comprising one nucleotide, a second side of a second stem comprising ten nucleotides and a single nucleotide bulge, a second side of a second internal loop comprising four nucleotides, and a second side of a third stem comprising four nucleotides; and

the first oligomeric compound comprises a first side of the first stem comprising three nucleotides, a first side of the first internal loop comprising one nucleotide, a first side of the second stem comprising ten nucleotides and a single nucleotide bulge, a first side of the second internal loop comprising two nucleotides, and a first side of the third stem comprising four nucleotides, and a 3' dangling region comprising one nucleotide.

108. The composition of claim 107 wherein the single nucleotide bulge in the second oligomeric compound is present after the seventh nucleotide in the second side of the second stem numbered 5' to 3' and the single nucleotide bulge in the first oligomeric compound is present after the sixth nucleotide in the first side of the second stem numbered 5' to 3'.

109. A composition comprising a first oligomeric compound and a second oligomeric compound forming a structure wherein:

the second oligomeric compound comprises a 3' dangling region comprising eight nucleotides, a second side of a first stem comprising three nucleotides, a second side of a first internal loop comprising two nucleotides, a second side of a second stem comprising twelve nucleotides, and a 5' dangling region comprising five nucleotides; and

the first oligomeric compound comprises a first 5' dangling region comprising one nucleotide, a first side of the first stem comprising three nucleotides, a first side of the first internal loop comprising four nucleotides, a first side of the second stem comprising twelve nucleotides, and a 3' dangling region comprising two nucleotides.

110. A method of claim 32 wherein the miRNA is mir-27b, mir-27 (Mourelatos), mir-99 (Mourelatos), mir-244* (Kosik), hypothetical miRNA-161, or hypothetical miRNA-170, or a precursor thereof.